A PHASE 1, OPEN-LABEL, RANDOMIZED, SINGLE DOSE, CROSSOVER STUDY TO ESTIMATE THE RELATIVE BIOAVAILABILITY OF NIRMATRELVIR AND RITONAVIR FOLLOWING ORAL ADMINISTRATION OF 4 DIFFERENT FIXED DOSE COMBINATION TABLET FORMULATIONS RELATIVE TO THE COMMERCIAL TABLET FORMULATION IN HEALTHY ADULT PARTICIPANTS UNDER FASTED CONDITIONS

Study Intervention Number:	PF-07321332
Study Intervention Name:	nirmatrelvir and ritonavir
US IND Number:	153517
EudraCT Number:	NA
ClinicalTrials.gov ID:	NA
Pediatric Investigational Plan Number:	NA
Protocol Number:	C4671023
Phase:	1

Brief Title: A Phase 1 Relative Bioavailability Study of Nirmatrelvir/Ritonavir 4 Different Fixed Dose Combination Tablets Relative to the Commercial Tablets in Healthy Participants

Document History

Document	Version Date
Ammendment 1	18 August 2022
Original protocol	29 June 2022

This amendment incorporates all revisions to date, including amendments made at the request of country health authorities and IRBs/ECs and any global protocol administrative change letter(s).

Protocol Amendment Summary of Changes Table

Amendment 1 (18 August 2022)

Overall Rationale for the Amendment: This study is being amended to CCI [redacted]

Section # and Name	Description of Change	Brief Rationale	Substantial or Nonsubstantial
• [redacted]	CCI [redacted]	[redacted]	[redacted]
• [redacted]	CCI [redacted]	[redacted]	[redacted]
• [redacted]	CCI [redacted]	[redacted]	[redacted]
• Section 9.2 (Analysis Sets);	**Revisions** made on PK concentration set and PK parameter set.	Updates based on newly added objective and endpoint.	Substantial

Section # and Name	Description of Change	Brief Rationale	Substantial or Nonsubstantial
• Section 9.3.1 (Pharmacokinetic Analyses);	**Added** statement about salivary PK parameters.		
• [redacted]	CCI [redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

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1. PROTOCOL SUMMARY

1.1. Synopsis

Protocol Title: A Phase 1, Open-Label, Randomized, Single Dose, Crossover Study to Estimate the Relative Bioavailability of Nirmatrelvir and Ritonavir Following Oral Administration of 4 Different Fixed Dose Combination Tablet Formulations Relative to The Commercial Tablet Formulation in Healthy Adult Participants Under Fasted Conditions

Brief Title: A Phase 1 Relative Bioavailability Study of Nirmatrelvir/Ritonavir 4 Different Fixed Dose Combination Tablets Relative to the Commercial Tablets in Healthy Participants.

Regulatory Agency Identification Number(s):

US IND Number:	153517
EudraCT Number:	NA
ClinicalTrials.gov ID:	NA
Pediatric Investigational Plan Number:	NA
Protocol Number:	C4671023
Phase:	1

Rationale:

Nirmatrelvir is a potent and selective inhibitor of the SARS-CoV-2 M^{pro} that is currently being developed as an oral treatment of COVID-19. Ritonavir is a strong CYP3A4 inhibitor being used to inhibit the metabolism of nirmatrelvir in order to increase plasma concentrations of nirmatrelvir to values that are efficacious. The clinical development program for nirmatrelvir includes 12 completed clinical studies: 8 Phase 1 studies in healthy participants (C4671001, C4671008, C4671012, C4671013, C4671014, C4671015, C4671019 and C4671024), 1 Phase 1 study in renal impairment participants (C4671011), 1 Phase 1 study in hepatic impairment participants (C4671010) and 2 Phase 2/3 pivotal studies in COVID-19 patients (C4671005 and C4671006).

The 4 different test formulations are designed to evaluate the effect of nirmatrelvir drug loading and disintegrant level on the performance of FDC tablets relative to the commercial product. The purpose of this study is to estimate the rBA of nirmatrelvir/ritonavir of 4 different FDC tablet formulations relative to the commercial tablet formulation under fasted conditions in healthy adult participants.

CCI [redacted]

Objectives and Endpoints:

Objectives	Endpoints
Primary:	**Primary:**
• To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 1 (low disintegrant) compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference). • To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 2 (high disintegrant) compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference). • To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 3 (high drug load) compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference). • To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (3 × 100/33.3 mg) FDC tablets Test formulation 4 compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference).	• The test/reference ratios for AUC_{inf} (if data permits), AUC_{last}, and C_{max} of nirmatrelvir and ritonavir.
Secondary:	**Secondary:**
• To evaluate the safety and tolerability of nirmatrelvir/ritonavir in healthy participants.	• Assessment of TEAEs, clinical laboratory abnormalities, vital signs, PEs, and 12-lead ECGs.

Overall Design:

This is a Phase 1, open-label, single-dose, randomized, crossover study in healthy adult participants to estimate rBA of nirmatrelvir/ritonavir 300/100 mg of 4 different FDC Test formulations compared to the nirmatrelvir/ritonavir 300/100 mg commercial tablets (Reference formulation) under fasted conditions. The study will also assess the safety and tolerability of nirmatrelvir/ritonavir FDC and commercial tablet formulations in healthy adult participants. CCI [redacted]

The study will consist of 5 treatments:

- Single oral dose of nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets (Treatment A)
- Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 1 (Treatment B; nirmatrelvir/ritonavir 150/50 mg, low disintegrant),
- Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 2 (Treatment C; nirmatrelvir/ritonavir 150/50 mg, high disintegrant)
- Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 3 (Treatment D; nirmatrelvir/ritonavir 150/50 mg, high drug load).
- Single oral dose of nirmatrelvir/ritonavir 300/100 mg (3 × 100/33.3 mg) FDC tablets Test formulation 4 (Treatment E; nirmatrelvir/ritonavir 100/33.3 mg),

All treatments will be administered under fasted condition. Between each treatment, a minimum of 4 days washout is proposed to minimize any residual nirmatrelvir and ritonavir concentrations prior to start of the next treatment.

Approximately 15 healthy male and/or female participants will be enrolled and randomized to the study. Participants who discontinue from the study for non-safety reasons may be replaced at the sponsor's discretion in collaboration with the investigator.

Healthy participants will be screened to determine eligibility within 28 days prior to study treatment. Medical history and results of PEs, vital signs, 12-lead ECGs, and clinical laboratory evaluations will determine eligibility. Eligible participants will be admitted to the PCRU on Day -1 and will be confined in the PCRU until discharge on Day 4 of Period 4.

On Day 1 of each period, participants will receive a single oral dose of study intervention nirmatrelvir/ritonavir 300/100 mg as per the randomization schedule. Study treatments will be administered with approximately 240 mL of ambient temperature water under fasted conditions (overnight fast and no food until 4 hours after dosing). Serial PK samples will be collected up to 72 hours post dose. CCI [redacted] Participants will be discharged from the PCRU on Day 4 of Period 4, following completion of all assessments.

If a participant has any clinically significant, study-related abnormalities at the conclusion of a scheduled inpatient portion of the study, the Pfizer medical monitor (or designated representative) should be notified and the participant may be asked to remain in the PCRU until such abnormalities are deemed not clinically significant, or it is safe for outpatient follow-up.

A safety follow-up call will be made to participants approximately 28 to 35 days from administration of the final dose of study intervention.

Number of Participants:

Approximately 15 healthy male and/or female participants will be enrolled and randomized to 1 of 5 possible treatment sequences to ensure at least 12 participants will complete the study.

Note: "Enrolled" means a participant's, or their legally authorized representative's, agreement to participate in a clinical study following completion of the informed consent process and randomization. A participant will be considered enrolled if the informed consent is not withdrawn prior to participating in any study activity. Potential participants who are screened for the purpose of determining eligibility for the study, but do not participate in the study, are not considered enrolled, unless otherwise specified by the protocol.

Study Population:

Key inclusion and exclusion criteria are listed below:

Inclusion Criteria

Participants must meet the following key inclusion criteria to be eligible for enrollment into the study:

1. Male and female participants who are overtly healthy as determined by medical evaluation including medical history, PE, laboratory tests, vital signs and standard 12-lead ECGs.

Exclusion Criteria

Participants with any of the following characteristics/conditions will be excluded:

1. Positive test result for SARS-CoV-2 infection on Day -1.

2. Participants who have received a COVID-19 vaccine within 7 days before screening or admission, or who are to be vaccinated with a COVID-19 vaccine at any time during the study confinement period.

Study Arms and Duration

The study will consist of 5 treatments. Each enrolled participant will participate in 4 study periods to receive 4 different treatments according to the sequence determined by randomization:

- Treatment A: Single oral dose of nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (Reference)

- Treatment B: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 1 (low disintegrant) under fasted conditions (Test 1)

- Treatment C: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 2 (high disintegrant) under fasted conditions (Test 2)

- Treatment D: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 3 (high drug loading) under fasted conditions (Test 3)

- Treatment E: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (3 × 100/33.3 mg) FDC tablets Test formulation 4 under fasted conditions (Test 4)

Participants will be randomly assigned to 1 of 5 sequences as below:

Treatment Sequence	Period 1	Period 2	Period 3	Period 4
Sequence 1 (N =3)	Treatment A	Treatment B	Treatment C	Treatment D
Sequence 2 (N =3)	Treatment B	Treatment C	Treatment D	Treatment E
Sequence 3 (N =3)	Treatment C	Treatment D	Treatment E	Treatment A
Sequence 4 (N =3)	Treatment D	Treatment E	Treatment A	Treatment B
Sequence 5 (N =3)	Treatment E	Treatment A	Treatment B	Treatment C

Between each treatment, a minimum of 4 days washout is proposed to minimize any residual nirmatrelvir and ritonavir concentrations prior to start of the next treatment. Participants will be discharged on Day 4 of Period 4, following completion of all assessments.

The total planned duration of participation from the Screening visit to the last follow-up phone call, is approximately 12 weeks.

Study Intervention(s)						
Intervention Name	Nirmatrelvir	Ritonavir	Nirmatrelvir/ ritonavir	Nirmatrelvir/ ritonavir	Nirmatrelvir/ ritonavir	Nirmatrelvir/ ritonavir
Arm Name (group of participants receiving a specific treatment or no treatment)	nirmatrelvir/ ritonavir commercial tablets	nirmatrelvir / ritonavir commercial tablets	nirmatrelvir/ ritonavir FDC tablets Test formulation 1	nirmatrelvir/ ritonavir FDC tablets Test formulation 2	nirmatrelvir/ ritonavir FDC tablets Test formulation 3	nirmatrelvir/ ritonavir FDC tablets Test formulation 4
Unit Dose Strength(s)	150 mg	100 mg	150/50 mg	150/50 mg	150/50 mg	100/33.3 mg
Route of Administration	Oral	Oral	Oral	Oral	Oral	Oral
Use	Reference	Reference	Test 1	Test 2	Test 3	Test 4
IMP or NIMP/AxMP	IMP	NIMP	IMP	IMP	IMP	IMP

Study Arm(s)					
Arm Title	Nirmatrelvir/ ritonavir commercial tablets	Nirmatrelvir/ ritonavir FDC tablets Test formulation 1	Nirmatrelvir/ ritonavir FDC tablets Test formulation 2	Nirmatrelvir/ ritonavir FDC tablets Test formulation 3	Nirmatrelvir/ ritonavir FDC tablets Test formulation 4
Arm Type	Reference	Experimental	Experimental	Experimental	Experimental
Arm Description	Single oral dose of nirmatrelvir/ ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (Reference)	Single oral dose of nirmatrelvir /ritonavir 300/100 mg (2 x 150/50 mg) FDC tablets Test formulation 1 (low disintegrant) under fasted conditions (Test 1)	Single oral dose of nirmatrelvir/ ritonavir 300/100 mg (2 x 150/50 mg) FDC tablets Test formulation 2 (high disintegrant) under fasted conditions (Test 2)	Single oral dose of nirmatrelvir/ ritonavir 300/100 mg (2 x 150/50 mg) FDC tablets Test formulation 3 (high drug loading) under fasted conditions (Test 3)	Single oral dose of nirmatrelvir/ ritonavir 300/100 mg (3 x 100/33.3 mg) FDC tablets Test formulation 4 under fasted conditions (Test 4)

Statistical Methods:

Natural log transformed AUC_{inf} (if data permits), AUC_{last} and C_{max} for nirmatrelvir and ritonavir will be analyzed using a mixed effect model with sequence, period and treatment as fixed effects and participant within a sequence as a random effect.

Sample Size Determination

Total of 15 participants will be enrolled, so that each treatment sequence will have 3 participants. A sample size of 15 participants will be sufficient to provide a reliable estimate of rBA and intrasubject variability of nirmatrelvir and ritonavir. Participants who withdraw from the study or discontinue treatment, or whose PK samples are considered to be nonevaluable with respect to the primary PK objective may be replaced at the discretion of the investigator upon consultation with the sponsor.

Pharmacokinetics Analysis

The PK concentration analysis set is defined as all participants who take at least 1 dose of study intervention and in whom at least 1 plasma concentration value is reported.

The PK parameter analysis set is defined as all participants who take at least 1 dose of study intervention and in whom at least 1 of the plasma PK parameters of primary interest are reported.

Plasma PK parameters of nirmatrelvir and ritonavir will be derived (as data permits) from the concentration-time data using standard noncompartmental methods. Actual PK sampling times will be used in the derivation of nirmatrelvir and ritonavir PK parameters when available, otherwise nominal times will be used. The nirmatrelvir and ritonavir plasma PK parameters will be summarized descriptively by treatment and Day. Plasma concentrations will be listed and summarized descriptively by treatment, and nominal PK sampling time. Individual participant and summary profiles (mean and median plots) of the plasma concentration time data will be plotted using actual and nominal times, respectively.

To estimate relative bioavailability, natural log transformed AUC_{inf} (if data permits), AUC_{last} and C_{max} values of nirmatrelvir and ritonavir will be analyzed using a mixed effect model with sequence, period and treatment as fixed effect and participant within sequence as a random effect. Estimates of the adjusted mean differences (Test-Reference) and corresponding 90% CIs will be obtained from the model. The adjusted mean differences and 90% CIs for the differences will be exponentiated to provide estimates of the ratio of adjusted geometric means (Test/Reference) and 90% CI for the ratios.

Safety Analysis

AEs, ECGs, BP, PR, and safety laboratory data will be reviewed and summarized on an ongoing basis during the study to evaluate the safety of participants. Any clinical laboratory, ECG, BP, and PR abnormalities of potential clinical concern will be described. Safety data will be presented in tabular and/or graphical format and summarized descriptively, where appropriate.

Ethical Considerations:

Nirmatrelvir is not expected to provide any clinical benefit to healthy participants in this study. This study is designed primarily to further the understanding of human PK, metabolism, and elimination of nirmatrelvir.

- Participants will be expected to commit time and may experience some discomfort while undergoing study assessments.
- Participants must agree to use appropriate contraception methods.

1.2. Schema

Not Applicable.

1.3. Schedule of Activities

The SoA table provides an overview of the protocol visits and procedures. Refer to the **STUDY ASSESSMENTS AND PROCEDURES** section of the protocol for detailed information on each procedure and assessment required for compliance with the protocol.

The investigator may schedule visits (unplanned visits) in addition to those listed in the SoA table, in order to conduct evaluations or assessments required to protect the well-being of the participant.

SoA:

Visit Identifier Abbreviations used in this table may be found in Appendix 10	**Screening[a]**	**Period 1**					**Period 2 & 3**				**Period 4**				**Follow-Up**	**Early Termination/ Discontinuation**
Days Relative to Day 1	**Days -28 to -2**	**Day -1**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**28-35 Days[b]**	
Informed consent	X															
CRU Confinement[c]		X	→	→	→	→	→	→	→	→	→	→	→	X		
Inclusion/exclusion criteria	X	X														
Medical/medication history (update)[d]	X	X														
Demography[e]	X															
PE[f]	X	X														
Safety laboratory[g]	X	X												X		X
FSH[h]	X															
Urine drug testing[i]	X	X														
Serology: HBsAg, HBsAb, HBcAb, HCVAb, and HIV[j]	X															
Pregnancy test (WOCBP only)	X	X												X		X
Contraception check[k]	X	X													X	
12-lead ECG (single)[l]	X		X[m]											X		X
Vital signs (BP/PR)[n]	X		X				X				X			X		X
COVID-19 questionnaire[o]	X	X														
COVID-19 testing[p]		X				X										
Nirmatrelvir/ritonavir dosing[q]			X				X				X					

Visit Identifier Abbreviations used in this table may be found in Appendix 10	**Screening[a]**	**Period 1**					**Period 2 & 3**				**Period 4**				**Follow-Up**	**Early Termination/ Discontinuation**
Days Relative to Day 1	**Days -28 to -2**	**Day -1**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**28-35 Days[b]**	
CCI [redacted]			[redacted]													
[redacted]			[redacted]													
PK Blood Sampling for nirmatrelvir and ritonavir[s]			X	X	X	X	X	X	X	X	X	X	X	X		X
CCI [redacted]			[redacted]				[redacted]				[redacted]					
Blood/Plasma ratio sample for nirmatrelvir and ritonavir			X				X				X					
CCI [redacted]			[redacted]				[redacted]				[redacted]					
Retained Research Sample for Genetics (Prep D1)[v]			X													
CCI [redacted]			[redacted]													
Serious and nonserious AE monitoring	X	→	→	→	→	→	→	→	→	→	→	→	→	→	X	X
Concomitant treatments	X	X	X	→	→	→	→	→	→	→	→	→	→	X		X
CRU discharge														X		

a. Screening will be performed within 28 days prior to the first dose of nirmatrelvir/ritonavir.
b. Follow-up contact may occur via telephone contact and must occur 28 to 35 days from administration of the final dose of study intervention.
c. Participants will be admitted to the CRU on Day -1. Participants will be discharged on Period 4 Day 4 following the final assessments.
d. Medical history will include a history of prior illegal drug, alcohol, and tobacco use, as well as blood donation within prior 60 days. Medical history will be recorded at Screening and updated on Period 1 Day -1.
e. Demographics will include participant race, ethnicity, age, and gender during the Screening visit.
f. PE will be performed by trained medical personnel at the investigator site at Screening or Period 1 Day -1 only (height and weight must be obtained at Screening to obtain BMI for eligibility criteria). A brief PE may be performed at other designated time points at the discretion of the investigator.
g. Safety laboratory assessments including urinalysis, hematology, chemistry and coagulation will be performed at Screening, Period 1 Day -1, Period 4 Day 4, and early termination/discontinuation if applicable. All the safety laboratory samples must be collected following at least a 4-hour fast. Additional safety laboratory assessments may be performed at any time at the discretion of the investigator.
h. For confirmation of postmenopausal (amenorrheic for at least 12 consecutive months) female participants.
i. Urine drug (mandatory) and alcohol breath test (at discretion of investigator) will be performed at Screening and on Period 1 Day -1. These tests may be performed at any other time at the discretion of the investigator.
j. HBsAb will be tested if HBsAg and/or HBcAb are positive.
k. The investigator or his/her designee will discuss with the participant the need to use highly effective contraception consistently and correctly according to contraception guidelines.

Visit Identifier Abbreviations used in this table may be found in Appendix 10	**Screening**[a]	**Period 1**					**Period 2 & 3**				**Period 4**				**Follow-Up**	**Early Termination/ Discontinuation**
Days Relative to Day 1	**Days -28 to -2**	**Day -1**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**28-35 Days**[b]	

l. Single 12-lead ECG readings approximately will be taken at specified time point. All ECG assessments will be made after at least a 5-minute rest in a supine position and prior to any blood draws or vital sign measurements.
m. This will be done predose of Period 1 Day 1.
n. Single supine BP and PR will be performed following at least a 5-minute rest in a supine position, at specified time point. BP, and PR assessments will be performed after collection of ECGs and prior to collection of blood draws if scheduled at the same time. Vital signs will be done at Screening, predose of Period 1 Day 1, and 2 hours and 6 hours post dose on Day 1 of each treatment period and also on Day 4 of Period 4.
o. COVID-19 related signs and symptoms as per local procedures.
p. The testing for COVID-19 pathogen by RT-PCR will be performed as per local procedures.
q. Nirmatrelvir/ritonavir will be administered orally after overnight fasting on Day 1 of each treatment period. There will be at least a 4 day washout between each dose.
r. CCI [redacted]
s. One (approximately 4 mL) blood sample for PK analysis of nirmatrelvir and ritonavir will be taken at the designated time points. See PK sampling schema in table below.
t. CCI [redacted]
v. Prep D1 Retained Research Samples for Genetics CCI [redacted]: If not collected on the designated collection day, collect at the next available time point when biospecimens are being collected in conjunction with a participant visit. These samples will be collected in Period 1 only.

Pharmacokinetic Sampling Schema

Visit Identifier	Treatment Period 1 to 4														
Study Day	Day 1												Day 2	Day 3	Day 4
Planned Hours Post Dose	0	0.5	1	1.5	2	2.5	3	4	6	8	12	16	24	48	72
PK blood sampling for nirmatrelvir and ritonavir	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCI															
Blood/Plasma ratio sample[b]					X						X				
CCI															

a. CCI
b. Blood sample for blood/plasma ration analysis of nirmatrelvir and ritonavir will be collected for Treatment A and B only.
c. CCI

2. INTRODUCTION

Nirmatrelvir is a potent and selective inhibitor of the SARS-CoV-2 M^{pro} that is currently being developed as an oral treatment of COVID-19. Ritonavir is a strong CYP3A4 inhibitor being used to inhibit the metabolism of nirmatrelvir in order to increase plasma concentrations of nirmatrelvir to values that are efficacious.

2.1. Study Rationale

The purpose of this study is to estimate the rBA of nirmatrelvir/ritonavir of 4 different FDC tablet formulations relative to the commercial tablet formulation under fasted conditions in healthy adult participants. The study will also assess the safety and tolerability, of nirmatrelvir/ritonavir of FDC and commercial tablet formulations in healthy adult participants. CCI [redacted]

2.2. Background

In December 2019, COVID-19 was identified as a new, potentially fatal, respiratory infection caused by the novel coronavirus, SARS-CoV-2. The WHO declared COVID-19 a Public Health Emergency of International Concern on 30 January 2020 and further characterized the disease outbreak as a pandemic on 11 March 2020.[1]

Nirmatrelvir is an orally bioavailable $3CL^{pro}$ inhibitor shown to be effective against SARS-CoV-2 $3CL^{pro}$ (K_i = 0.00311 µM) in a biochemical enzymatic assay. Nirmatrelvir is being developed as an oral treatment in patients with COVID-19 infection.

Ritonavir is a strong CYP3A4 inhibitor being used to inhibit the metabolism of nirmatrelvir in order to increase plasma concentrations of nirmatrelvir to values that are efficacious. Ritonavir is not expected to have any pharmacological impact on the SARS-CoV-2 virus and its elimination. Ritonavir is being used only as a PK boosting agent.

The clinical development program for nirmatrelvir includes 12 completed clinical studies: 8 Phase 1 studies in healthy participants (C4671001, C4671008, C4671019, C4671024, C4671012, C4671013, C4671014 and C4671015), 1 Phase 1 study in renal impairment participants (C4671011), 1 Phase 1 study in hepatic impairment participants (C4671010) and 2 Phase 2/3 pivotal studies in COVID-19 patients (C4671005 and C4671006).

2.2.1. Nonclinical Pharmacology

Details of the nonclinical pharmacology of nirmatrelvir can be found in the current IB[2].

2.2.2. Nonclinical Pharmacokinetics and Metabolism

Hepatic CYP3A enzymes were identified as the main pathway for clearance of nirmatrelvir in vitro in liver microsomes (mouse, rat, hamster, rabbit, monkey, and human), hepatocytes

(rat, monkey, and human), and in vivo in rat and monkey after repeat oral dosing. CCI [redacted]

Additional information of the nonclinical PK and metabolism of nirmatrelvir is available in the current IB[2].

2.2.3. Nonclinical Safety

CCI [redacted]

Further details of the nonclinical safety program are provided in the current IB[2].

2.2.4. Clinical Overview

Safety, tolerability and PK of nirmatrelvir studies in healthy adult participants (C4671001, C4671008, C4671019, C4671024, C4671012, C4671013, C4671014 and C4671015), as well as in renal impairment participants (C4671011) and hepatic impairment participants (C4671010). The relative bioavailability and food effect were evaluated in 2 phase 1 studies (C4671001 and C4671019) in healthy participants. Efficacy and safety of nirmatrelvir were evaluated in interventional Phase 2/3 pivotal studies in COVID-19 patients (C4671005 and C4671006).

Included in this Clinical Overview are summaries of the results of Study C4671001, C4671019 and C4671005.

CCI

[redacted]

2.2.4.1. Safety Overview

In the completed Phase 1 studies in healthy participants and Phase 2/3 study in participants with a laboratory-confirmed diagnosis of SARS-CoV-2 infection, nirmatrelvir/ritonavir was generally safe and well-tolerated.

CCI

[redacted]

CCI [redacted]

[redacted]

Further details on the clinical safety information with nirmatrelvir are provided in the current IB[2].

2.2.4.2. Summary of Nirmatrelvir Pharmacokinetics in Human

Study C4671001- FIH

CCI [redacted]

CCI [redacted]

Further details on the clinical PK of nirmatrelvir are provided in the current IB[2].

Study C4671019-Food Effects

CCI [redacted]

2.3. Benefit/Risk Assessment

Nirmatrelvir is not expected to provide any clinical benefit to healthy participants in this study. This study is designed primarily to further the understanding of human PK, metabolism, and elimination of nirmatrelvir.

Based on data from Study C4671001, C4671019 and C4671005, the clinical safety profile of nirmatrelvir appears to be acceptable at single doses up to 1500 mg alone and up to 2250 mg administered with ritonavir (100 mg at -12h, 0h, 12h), split dosing administration (3 doses of 750 mg) at short intervals (approximately 2 hours from the previous dose), and at repeated daily doses administered orally for 10 days of up to 500 mg nirmatrelvir q12h with 100 mg ritonavir q12h.

More detailed information about the known and expected benefits and risks and reasonably expected AEs of nirmatrelvir and ritonavir may be found in the IB[2], which is the SRSD for this study.

2.3.1. Risk Assessment

Potential Risk of Clinical Significance	Summary of Data/Rationale for Risk	Mitigation Strategy
	Study Intervention: Nirmatrelvir	
Dysgeusia	In Study C4671005, dysgeusia was recorded as an AE by 6% of participants receiving nirmatrelvir/ritonavir compared to <1% of participants receiving placebo	Participants may utilize recommendations to alleviate symptoms of dysgeusia while taking treatment such as peppermint post-dose. Dosing recommendations will be provided to the participant.
Emesis	Sporadic emesis was observed at ≥100 mg/kg/day of nirmatrelvir in the 15-day NHP toxicology study.	AEs will be monitored and participants may receive antiemetics.
Hypertension	Transient increases in systolic, diastolic and mean BP were observed in pre-clinical studies. In Study C4671005 (adults at high risk for severe disease) a small imbalance in hypertension AEs (1% vs < 1%) was reported.	Vital signs and all AEs will be monitored in the study.
Study Intervention: Ritonavir		
Gastrointestinal disturbances (including diarrhea, nausea, vomiting, and abdominal pain)	Frequently reported adverse reaction in patients who are HIV-positive at 600 mg BID.	Lower dose of 100 mg used in this study. There is a single dose PK study. There will be close observation of AEs.
Neurological disturbances (eg, paresthesia, including oral paresthesia, dysgeusia, and dizziness)	Frequently reported adverse reaction in patients who are HIV-positive at 600 mg BID.	Lower dose of 100 mg used in this study. There will be close observation of AEs.
Rash (most commonly reported as erythematous and maculopapular, followed by pruritic)	Frequently reported adverse reaction in patients who are HIV-positive at 600 mg BID.	Lower dose of 100 mg used in this study. There will be close observation of AEs and monitoring through physical exams. If needed therapeutic interventions per SOC may be provided.
Fatigue/Asthenia	Frequently reported adverse reaction in patients who are HIV-positive at 600 mg BID.	Lower dose of 100 mg used in this study. There will be close observation of AEs. Fatigue (low energy or tiredness) will be assessed through collection of daily signs and symptoms and will also be assessed through physical examinations.

Potential Risk of Clinical Significance	Summary of Data/Rationale for Risk	Mitigation Strategy
Study Procedures		
Venipuncture will be performed during the study.	There is the risk of bleeding, bruising, hematoma formation, and infection at the venipuncture site.	Only appropriately qualified personnel will obtain the blood draw.
Tasso device will be applied to an upper extremity.	There is risk of bleeding, bruising, hematoma formation, and infection in the upper extremity with Tasso device placement.	Only appropriately qualified personnel will obtain blood utilizing the Tasso device.

3. OBJECTIVES AND ENDPOINTS

Objectives	Endpoints
Primary:	**Primary:**
• To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 1 (low disintegrant) compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference). • To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 2 (high disintegrant) compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference). • To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 3 (high drug load) compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference). • To estimate the rBA of the nirmatrelvir/ritonavir 300/100 mg (3 × 100/33.3 mg) FDC tablets Test formulation 4 compared to the nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (reference).	• The test/reference ratios for AUC_{inf} (if data permits), AUC_{last}, and C_{max} of nirmatrelvir and ritonavir.
Secondary:	**Secondary:**
• To evaluate the safety and tolerability of nirmatrelvir/ritonavir in healthy participants.	• Assessment of TEAEs, clinical laboratory abnormalities, vital signs, PEs, and 12-lead ECGs.

Objectives	Endpoints
CCI [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

4. STUDY DESIGN

4.1. Overall Design

This is a Phase 1, open-label, single-dose, randomized, crossover study in healthy adult participants to estimate rBA of 4 different nirmatrelvir/ritonavir 300/100 mg FDC tablets formulations (Test formulations) compared to the nirmatrelvir/ritonavir 300/100 mg commercial tablet formulation (Reference formulation) under fasted conditions. The study will also assess the safety and tolerability, of nirmatrelvir/ritonavir FDC and commercial tablet formulations in healthy adult participants. CCI [redacted]

Approximately 15 healthy male and/or female participants will be enrolled and randomized to 1 of 5 possible treatment sequences to ensure at least 12 participants will complete the study. Participants who discontinue from the study for non-safety reasons may be replaced at the sponsor's discretion in collaboration with the investigator. The replacement participant will receive the same treatment sequences as the participant who discontinued.

The study will consist of 5 treatments. Each enrolled participant will participate in 4 study periods to receive 4 different treatments according to the sequence determined by randomization:

- Treatment A: Single oral dose of nirmatrelvir/ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (Reference)

- Treatment B: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 1 (low disintegrant) under fasted conditions (Test 1)

- Treatment C: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 2 (high disintegrant) under fasted conditions (Test 2)

- Treatment D: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (2 × 150/50 mg) FDC tablets Test formulation 3 (high drug loading) under fasted conditions (Test 3)

- Treatment E: Single oral dose of nirmatrelvir/ritonavir 300/100 mg (3 × 100/33.3 mg) FDC tablets Test formulation 4 under fasted conditions (Test 4)

Participants will be randomly assigned to 1 of 5 sequences as shown below in Table 1. Participants will be discharged on Day 4 of Period 4, following completion of all assessments. Between each treatment, a minimum of 4 days washout is proposed to minimize any residual nirmatrelvir and ritonavir concentrations prior to start of the next treatment. The total planned duration of participation from the Screening visit to the last follow-up phone call, is approximately 12 weeks.

Table 1. Randomized Treatment Sequences

Treatment Sequence	Period 1	Period 2	Period 3	Period 4
Sequence 1 (N =3)	Treatment A	Treatment B	Treatment C	Treatment D
Sequence 2 (N =3)	Treatment B	Treatment C	Treatment D	Treatment E
Sequence 3 (N =3)	Treatment C	Treatment D	Treatment E	Treatment A
Sequence 4 (N =3)	Treatment D	Treatment E	Treatment A	Treatment B
Sequence 5 (N =3)	Treatment E	Treatment A	Treatment B	Treatment C

Healthy participants will be screened to determine eligibility within 28 days prior to study treatment. Medical history and results of PEs, vital signs, 12-lead ECGs, and clinical laboratory evaluations will determine eligibility. Eligible participants will be admitted to the PCRU on Day -1 and will be confined in the PCRU until discharge on Day 4 of Period 4.

On Day 1 of each period, participants will receive a single oral dose of study intervention nirmatrelvir/ritonavir 300/100 mg as per the randomization schedule. Study treatments will be administered with approximately 240 mL of ambient temperature water under fasted conditions (overnight fast of at least 10 hours and no food until 4 hours after dosing). Serial PK samples will be collected up to 72 hours post dose. CCI [redacted]

CCI [redacted]. Participants will be discharged from the PCRU on Day 4 of Period 4, following completion of all assessments.

If a participant has any clinically significant, study related abnormalities at the conclusion of a scheduled inpatient portion of the study, the Pfizer medical monitor (or designated representative) should be notified and the participant may be asked to remain in the PCRU until such abnormalities are deemed not clinically significant, or it is safe for outpatient follow-up. A safety follow-up call will be made to participants approximately 28 to 35 days from administration of the final dose of study intervention.

4.2. Scientific Rationale for Study Design

Nirmatrelvir/ritonavir FDC tablet is an alternative formulation for current commercial tablets to increase the adherence. The 4 different test formulations are designed to evaluate the effect of nirmatrelvir drug loading and disintegrant level on the performance of FDC tablets relative to the commercial product. The objective of the study is to estimate the rBA of nirmatrelvir/ritonavir of 4 different FDC tablets formulations (Test formulations) compared to the nirmatrelvir/ritonavir commercial tablets (Reference formulation) under fasted conditions. The study will also assess the safety and tolerability of nirmatrelvir/ritonavir oral FDC and commercial tablet formulations in healthy adult participants.

The study is being designed as a crossover study to account for any period effect. Between each treatment, a minimum of 4 days washout is proposed to minimize any residual nirmatrelvir and ritonavir concentrations prior to start of the next treatment, as nirmatrelvir has a half-life of approximately 6 to 13 hours when co-administered with ritonavir.

4.2.1. Choice of Contraception/Barrier Requirements

Human reproductive safety data are limited for nirmatrelvir, but there is no suspicion of human teratogenicity based on the intended pharmacology of the compound. Therefore, the use of a highly effective method of contraception is required (see Appendix 4).

4.2.2. Collection of Retained Research Samples

Retained Research Samples will be collected and stored for further analyses which may, for example, provide greater understanding of the study intervention.

4.3. Justification for Dose

The dose of nirmatrelvir/ritonavir 300/100 mg BID for 5 days is the approved therapeutic dose and treatment duration under emergency use authorization. This dose is lower than the highest dose evaluated in the Phase 1 C4671001 study and is safe and well-tolerated.

This study is designed to evaluate rBA of nirmatrelvir/ritonavir of 4 different FDC tablets formulations compared to nirmatrelvir/ritonavir commercial tablets in healthy adult participants at the approved therapeutic dose. Therefore, a single oral dose nirmatrelvir/ritonavir 300/100 mg will be used in this relative bioavailability study.

4.4. End of Study Definition

The end of the study is defined as the date of the last scheduled procedure shown in the SoA for the last participant in the trial.

A participant is considered to have completed the study if they have completed all parts of the study, including the last scheduled procedure shown in the SoA.

5. STUDY POPULATION

This study can fulfill its objectives only if appropriate participants are enrolled, including participants across diverse and representative racial and ethnic backgrounds. Use of a prescreening tool is utilized for study recruitment purposes, it will include collection of information that reflects the enrollment of a diverse participant population including, where permitted under local regulations, age, sex, and race, and ethnicity. The following eligibility criteria are designed to select participants for whom participation in the study is considered appropriate. All relevant medical and nonmedical conditions should be taken into consideration when deciding whether a particular participant is suitable for this protocol.

Prospective approval of protocol deviations to recruitment and enrollment criteria, also known as protocol waivers or exemptions, is not permitted.

5.1. Inclusion Criteria

Participants are eligible to be included in the study only if all of the following criteria apply:

Age and Sex:

1. Male and/or female participants must be ≥18 years of age, inclusive, at the time of signing the ICD.

    - Refer to Appendix 4 for reproductive criteria for male (Section 10.4.1) and female (Section 10.4.2) participants.

Type of Participant and Disease Characteristics:

2. Male and female participants who are overtly healthy as determined by medical evaluation including medical history, PE, laboratory tests, vital signs and standard 12-lead ECGs.

3. Participants who are willing and able to comply with all scheduled visits, treatment plan, laboratory tests, lifestyle considerations, and other study procedures.

4. Female participants of childbearing potential must have a negative pregnancy test at screening.

Weight:

5. BMI of 17.5 to 30.5 kg/m^2; and a total body weight >50 kg (110 lb).

Informed Consent: .

6. Capable of giving signed informed consent as described in Appendix 1, which includes compliance with the requirements and restrictions listed in the ICD and in this protocol.

5.2. Exclusion Criteria

Participants are excluded from the study if any of the following criteria apply:

Medical Conditions:

1. Positive test result for SARS-CoV-2 infection on Day -1.

2. Evidence or history of clinically significant hematological, renal, endocrine, pulmonary, gastrointestinal, cardiovascular, hepatic, psychiatric, neurological, or allergic disease (including drug allergies, but excluding untreated, asymptomatic, seasonal allergies at the time of dosing).

3. Clinically relevant abnormalities requiring treatment (eg, acute myocardial infarction, unstable ischemic conditions, evidence of ventricular dysfunction, serious tachy- or brady-arrhythmias) or indicating serious underlying heart disease (eg, prolonged PR interval, cardiomyopathy, heart failure greater than NYHA 1, underlying structural heart disease, Wolff Parkinson-White syndrome).

4. Any condition possibly affecting drug absorption (eg, gastrectomy, cholecystectomy).

5. History of HIV infection, hepatitis B, or hepatitis C; positive testing for HIV, HBsAg, HBcAb or HCVAb. Hepatitis B vaccination is allowed.

6. Other medical or psychiatric condition including recent (within the past year) or active suicidal ideation/behavior or laboratory abnormality or other conditions or situations related to COVID-19 pandemic (eg, contact with positive case) that may increase the risk of study participation or, in the investigator's judgment, make the participant inappropriate for the study.

Prior/Concomitant Therapy:

7. Use of prescription or nonprescription drugs and dietary and herbal supplements within 7 days or 5 half-lives (whichever is longer) prior to the first dose of study intervention. Refer to Section 6.9 Prior and Concomitant Therapy for additional details.

    - Concomitant use of any medications or substances that are strong inducers of CYP3A4 are prohibited within 28 days prior to first dose of nirmatrelvir/ritonavir and during study treatment.

    - Concomitant use of any medications or substances that are inhibitors of CYP3A4 are prohibited during study treatment and 4 days after the last dose of study intervention.

8. Current use of any prohibited concomitant medication(s) or participant unwilling/unable to use a permitted concomitant medication(s). Refer to Section 6.9 Prior and Concomitant Therapy.

9. Participants who have received a COVID-19 vaccine within 7 days before screening or admission, or who are to be vaccinated with a COVID-19 vaccine at any time during the study confinement period.

Prior/Concurrent Clinical Study Experience:

10. Previous administration with an investigational product (drug or vaccine) within 30 days (or as determined by the local requirement) or 5 half-lives preceding the first dose of study intervention used in this study (whichever is longer). Participants who have participated in previous clinical trials with nirmatrelvir may be eligible to participate in this study as long as they meet all other criteria.

Diagnostic Assessments:

11. A positive urine drug test.

12. Screening supine BP ≥140 mm Hg (systolic) or ≥90 mm Hg (diastolic), following at least 5 minutes of supine rest. If BP is ≥140 mm Hg (systolic) or ≥90 mm Hg (diastolic), the BP should be repeated 2 more times and the average of the 3 BP values should be used to determine the participant's eligibility.

13. Standard 12-lead ECG (single) that demonstrates clinically relevant abnormalities that may affect participant safety or interpretation of study results (eg, baseline QTcF interval >450 msec, complete LBBB, signs of an acute, old or age indeterminate myocardial infarction, ST-T interval changes suggestive of myocardial ischemia, second- or third-degree AV block, or serious bradyarrhythmias or tachyarrhythmias). If the baseline uncorrected QT interval is >450 msec, this interval should be

rate-corrected using the Fridericia method and the resulting QTcF should be used for decision making and reporting. If QTcF exceeds 450 msec, or QRS exceeds 120 msec, the ECG should be repeated 2 more times and the average of the 3 QTcF or QRS values should be used to determine the participant's eligibility. Computer-interpreted ECGs should be overread by a physician experienced in reading ECGs before excluding a participant.

14. Participants with **ANY** of the following abnormalities in clinical laboratory tests at Screening, as assessed by the study-specific laboratory and confirmed by a single repeat test, if deemed necessary:

    - AST **or** ALT level >1.5 × ULN;
    - Total bilirubin level ≥1.5 × ULN; participants with a history of Gilbert's syndrome may have direct bilirubin measured and would be eligible for this study provided the direct bilirubin level is ≤ULN.
    - eGFR <60 mL/min/1.73 m^2 based on the CKD-EPI equation.

Other Exclusion Criteria:

15. History of alcohol abuse or binge drinking and/or any other illicit drug use or dependence within 6 months of Screening. Binge drinking is defined as a pattern of 5 (male) and 4 (female) or more alcoholic drinks in about 2 hours. As a general rule, alcohol intake should not exceed 14 units per week (1 unit = 8 ounces (240 mL) beer, 1 ounce (30 mL) of 40% spirit, 3 ounces (90 mL) of wine).

16. Use of tobacco or nicotine-containing products in excess of the equivalents of 5 cigarettes per day or 2 chews of tobacco per day.

17. Blood donation (excluding plasma donations) of approximately 1 pint (500 mL) or more within 60 days prior to dosing.

18. History of sensitivity to heparin, heparin-induced thrombocytopenia.

19. Unwilling or unable to comply with the criteria in the Lifestyle Considerations section of this protocol.

20. Investigator site staff directly involved in the conduct of the study and their family members, site staff otherwise supervised by the investigator, and sponsor and sponsor delegate employees directly involved in the conduct of the study and their family members.

21. History of sensitivity reactions to nirmatrelvir, ritonavir, or any of the formulation components of nirmatrelvir, or ritonavir.

22. Pregnant or breastfeeding women.

5.3. Lifestyle Considerations

5.3.1. Contraception

The investigator or their designee, in consultation with the participant, will confirm that the participant is utilizing an appropriate method of contraception for the individual participant and their partner(s) from the permitted list of contraception methods (see Appendix 4 Section 10.4.4) and will confirm that the participant has been instructed in its consistent and correct use. At time points indicated in SoA, the investigator or designee will inform the participant of the need to use highly effective contraception consistently and correctly and document the conversation and the participant's affirmation in the participant's chart. Participants need to affirm their consistent and correct use of at least 1 of the selected methods of contraception, considering that their risk for pregnancy may have changed since the last visit.

In addition, the investigator or designee will instruct the participant to call immediately if the selected contraception method is discontinued and document the requirement to use an alternate protocol-specified method, including if the participant will no longer use abstinence as the selected contraception method, or if pregnancy is known or suspected in the participant or partner.

5.3.2. Meals and Dietary Restrictions

- Participants must abstain from all food and drink (except water) at least 4 hours prior to any safety laboratory evaluations and 10 hours prior to the collection of the predose PK sample on Day 1 of each Period.

- Water is permitted until 1 hour prior to study intervention administration. Water may be consumed without restriction beginning 1 hour after nirmatrelvir/ritonavir dosing. Noncaffeinated drinks (except red wine, grapefruit or grapefruit-related citrus fruit juices—see below) may be consumed with meals and the evening snack.

- Lunch will be provided approximately 4 hours after nirmatrelvir/ritonavir dosing.

- Dinner will be provided approximately 9 to 10 hours after nirmatrelvir/ritonavir dosing.

- An evening snack may be permitted.

- Participants will refrain from consuming red wine, grapefruit, or grapefruit-related citrus fruits (eg, Seville oranges, pomelos, fruit juices) from 7 days prior to the first dose of study intervention until collection of the final PK blood sample.

- While participants are confined, their total daily nutritional composition should be approximately 55% carbohydrate, 30% fat, and 15% protein. The daily caloric intake per participant should not exceed approximately 3200 kcal.

5.3.3. Caffeine, Alcohol, and Tobacco

- Participants will abstain from caffeine-containing products for 24 hours prior to the start of dosing until collection of the final PK sample.

- Participants will abstain from alcohol for 24 hours prior to admission (or as specified above for red wine) to the CRU and continue abstaining from alcohol until collection of the final PK sample. Participants may undergo an alcohol breath test or blood alcohol test at the discretion of the investigator.

- Participants will abstain from the use of tobacco or nicotine-containing products for 24 hours prior to dosing and during confinement in the CRU.

5.3.4. Activity

- Participants will abstain from strenuous exercise (eg, heavy lifting, weight training, calisthenics, aerobics) for at least 48 hours prior to each blood collection for clinical laboratory tests. Walking at a normal pace will be permitted;

- In order to standardize the conditions on PK sampling days, participants will be required to refrain from lying down (except when required for BP, PR, and ECG measurements), eating, and drinking beverages other than water during the first 4 hours after nirmatrelvir/ritonavir dosing;

- Participants may be confined to the procedure room for the first 4 hours after dosing on Day 1, except to use the bathroom. After this, participants may be ambulatory but should not engage in strenuous activities.

5.4. Screen Failures

Screen failures are defined as participants who consent to participate in the clinical study but are not subsequently enrolled in the study. Screen failure data are collected and remain as source and are not reported on the CRF.

Individuals who do not meet the criteria for participation in this study (screen failure) may be rescreened.

6. STUDY INTERVENTION(S) AND CONCOMITANT THERAPY

Study interventions are all prespecified investigational and noninvestigational medicinal products/auxiliary medicinal products, medical devices, and other interventions (eg, surgical and behavioral) intended to be administered to the study participants during the study conduct.

For the purposes of this protocol, study intervention refers to nirmatrelvir and ritonavir.

6.1. Study Intervention(s) Administered

For this study, the study interventions are the nirmatrelvir/ritonavir FDC tablets Test formulation 1 (Test 1), nirmatrelvir/ritonavir FDC tablets Test formulation 2 (Test 2), nirmatrelvir/ritonavir FDC tablets Test formulation 3 (Test 3), nirmatrelvir/ritonavir FDC tablets Test formulation 4 (Test 4) and a commercial tablet formulation of nirmatrelvir (Reference formulation), and will be supplied by Pfizer.

Commercially available 100 mg ritonavir tablets will be supplied by the PCRU.

Study Intervention(s)						
Intervention Name	Nirmatrelvir	Ritonavir	Nirmatrelvir/ ritonavir	Nirmatrelvir/ ritonavir	Nirmatrelvir/ ritonavir	Nirmatrelvir/ ritonavir
Arm Name (group of participants receiving a specific treatment or no treatment)	nirmatrelvir/ ritonavir commercial tablets	nirmatrelvir/ ritonavir commercial tablets	nirmatrelvir/ ritonavir FDC tablets Test formulation 1	nirmatrelvir/ ritonavir FDC tablets Test formulation 2	nirmatrelvir/ ritonavir FDC tablets Test formulation 3	nirmatrelvir/ ritonavir FDC tablets Test formulation 4
Unit Dose Strength(s)	150 mg	100 mg	150/50 mg	150/50 mg	150/50 mg	100/33.3 mg
Route of Administration	Oral	Oral	Oral	Oral	Oral	Oral
Use	Reference	Reference	Test 1	Test 2	Test 3	Test 4
IMP or NIMP/AxMP	IMP	NIMP	IMP	IMP	IMP	IMP

Study Arm(s)					
Arm Title	Nirmatrelvir/ ritonavir commercial tablets	Nirmatrelvir/ ritonavir FDC tablets Test formulation 1	Nirmatrelvir/ ritonavir FDC tablets Test formulation 2	Nirmatrelvir/ ritonavir FDC tablets Test formulation 3	Nirmatrelvir/ ritonavir FDC tablets Test formulation 4
Arm Type	Reference	Experimental	Experimental	Experimental	Experimental
Arm Description	Single oral dose of nirmatrelvir/ ritonavir 300 (2 × 150)/100 mg commercial tablets under fasted conditions (Reference)	Single oral dose of nirmatrelvir /ritonavir 300/100 mg (2 x 150/50 mg) FDC tablets Test formulation 1 (low disintegrant) under fasted conditions (Test 1)	Single oral dose of nirmatrelvir/ ritonavir 300/100 mg (2 x 150/50 mg) FDC tablets Test formulation 2 (high disintegrant) under fasted conditions (Test 2)	Single oral dose of nirmatrelvir/ ritonavir 300/100 mg (2 x 150/50 mg) FDC tablets Test formulation 3 (high drug loading) under fasted conditions (Test 3)	Single oral dose of nirmatrelvir/ ritonavir 300/100 mg (3 x 100/33.3 mg) FDC tablets Test formulation 4 under fasted conditions (Test 4)

6.1.1. Administration

Study interventions will be administered orally and according to the conditions described in the SoA section and Protocol Section 5.3.2 Meals and Dietary Restrictions.

On Day 1 of each treatment period, following an overnight fast of at least 10 hours, participants will receive nirmatrelvir 300 mg (as 2 × 150 mg tablets) with ritonavir 100 mg (as 1 × 100 mg tablet) commercial tablets or nirmatrelvir/ritonavir 300/100 mg as 2 tablets of nirmatrelvir/ritonavir 150/50 mg FDC tablets Test formulation 1 (low disintegrant), or nirmatrelvir/ritonavir 300/100 mg as 2 tablets of nirmatrelvir/ritonavir 150 mg/50mg FDC tablets Test formulation 2 (high disintegrant), or nirmatrelvir/ritonavir 300 mg/100 mg as 2 tablets of nirmatrelvir/ritonavir 150/50 mg FDC tablets Test formulation 3 (high drug loading) or nirmatrelvir/ritonavir 300/100 mg as 3 tablets of nirmatrelvir/ritonavir 100/33.3 mg FDC tablets Test formulation 4 with approximately 240 mL ambient temperature water administered orally starting at approximately 0800 hours (plus or minus 2 hours). Nirmatrelvir and ritonavir will be dosed simultaneously (within no more than 5 minutes of each other). Participants will swallow all tablet formulations whole and will not manipulate or chew the tablets prior to swallowing.

In order to standardize the conditions on PK sampling days, all participants will be required to refrain from lying down (except when required for BP, PR, and ECG measurements), eating, and drinking beverages other than water during the first 4 hours after nirmatrelvir/ritonavir dosing.

6.2. Preparation, Handling, Storage, and Accountability

1. The investigator or designee must confirm that appropriate conditions (eg, temperature) have been maintained during transit for all study interventions received and any discrepancies are reported and resolved before use of the study intervention.

2. Only participants enrolled in the study may receive study intervention and only authorized site staff may supply, prepare, and/or administer study intervention.

3. All study interventions must be stored in a secure, environmentally controlled, and monitored (manual or automated recording) area in accordance with the labeled storage conditions with access limited to the investigator and authorized site staff. At a minimum, daily minimum and maximum temperatures for all site storage locations must be documented and available upon request. Data for nonworking days must indicate the minimum and maximum temperatures since previously documented for all site storage locations upon return to business.

4. Any excursions from the study intervention label storage conditions should be reported to Pfizer upon discovery along with any actions taken. The site should actively pursue options for returning the study intervention to the labeled storage conditions described in the labeling, as soon as possible. Once an excursion is identified, the study intervention must be quarantined and not used until Pfizer provides permission to use the study intervention. Specific details regarding the

excursion definition and information to report for each excursion will be provided to the site in the PCRU site procedures.

5. Any storage conditions stated in the SRSD will be superseded by the storage conditions stated on the label.

6. Study interventions should be stored in their original containers.

7. The investigator, institution, head of the medical institution (where applicable), or authorized site staff is responsible for study intervention accountability, reconciliation, and record maintenance (ie, receipt, reconciliation, and final disposition records), such as the IPAL or sponsor-approved equivalent. All study interventions will be accounted for using a study intervention accountability form/record.

8. Further guidance and information for the final disposition of unused study interventions are provided in the PCRU's site procedures. All destruction must be adequately documented. If destruction is authorized to take place at the investigator site, the investigator must ensure that the materials are destroyed in compliance with applicable environmental regulations, institutional policy, and any special instructions provided by Pfizer.

Upon identification of a product complaint, notify the sponsor within 1 business day of discovery.

6.2.1. Preparation and Dispensing

Within this protocol, preparation refers to the investigator site activities performed to make the study intervention ready for administration or dispensing to the participant by qualified staff. Dispensing is defined as the provision of study intervention, concomitant treatments, and accompanying information by qualified staff member(s) to a healthcare provider, participant in accordance with this protocol. Local health authority regulations or investigator site guidelines may use alternative terms for these activities.

Nirmatrelvir 150 mg tablets will be prepared at the PCRU in the individual dosing containers by 2 operators, 1 of whom is an appropriately qualified and experienced member of the study staff (eg, physician, nurse, physician's assistant, nurse practitioner, pharmacy assistant/technician, or pharmacist). The tablets will be provided in unit dose containers and labeled in accordance with Pfizer regulations and the clinical site's labeling requirements.

Commercial ritonavir (Norvir® or other local commercialized product) oral tablets will be dispensed at the PCRU into individual dosing containers using the package insert as guidance. All study intervention should be prepared and dispensed by an appropriately qualified and experienced member of the study staff (eg, physician, nurse, physician's assistant, nurse practitioner, pharmacy assistant/technician, or pharmacist) as allowed by local, state, and institutional guidance. A second staff member will verify the dispensing.

Nirmatrelvir/ritonavir FDC tablets will be prepared at the PCRU in the individual dosing containers by 2 operators, 1 of whom is an appropriately qualified and experienced member of the study staff (eg, physician, nurse, physician's assistant, nurse practitioner, pharmacy assistant/technician, or pharmacist). Prepared doses will be provided in unit dose containers and labeled in accordance with Pfizer regulations and the investigator site's labeling requirements.

6.3. Assignment to Study Intervention

The investigator's knowledge of the treatment should not influence the decision to enroll a particular participant or affect the order in which participants are enrolled.

The investigator will assign participant numbers to the participants as they are screened for the study. Pfizer will provide a randomization schedule to the investigator and, in accordance with the randomization numbers, the participant will receive the study treatment regimen assigned to the corresponding randomization number.

6.4. Blinding

This is an open-label study.

6.5. Study Intervention Compliance

When participants are dosed at the site, they will receive study intervention directly from the investigator or designee, under medical supervision. The date and time of each dose administered in the PCRU will be recorded in the source documents and recorded in the CRF. The dose of study intervention and study participant identification will be confirmed at the time of dosing by a member of the study site staff other than the person administering the study intervention. Study site personnel will examine each participant's mouth to ensure that the study intervention was ingested.

6.6. Dose Modification

No dose modification is anticipated.

6.7. Continued Access to Study Intervention After the End of the Study

No study intervention will be provided to study participants at the end of their study participation. It is expected that participants will be treated as required with standard-of-care treatments, as advised by their usual care physician.

6.8. Treatment of Overdose

For this study, any dose of nirmatrelvir greater than 300 mg or ritonavir 100 mg within a 24-hour time period [±2 hours] will be considered an overdose.

There is no specific treatment for an overdose.

In the event of an overdose, the investigator should:

1. Contact the study medical monitor within 24 hours.
2. Closely monitor the participant for any AEs/SAEs and laboratory abnormalities as medically appropriate and at least until the next scheduled follow-up.
3. Document the quantity of the excess dose as well as the duration of the overdose in the CRF.
4. Overdose is reportable to Pfizer Safety **only when associated with an SAE.**
5. Obtain a blood sample for PK analysis within 1 day from the date of the last dose of study intervention if requested by the study medical monitor (determined on a case-by-case basis).

6.9. Prior and Concomitant Therapy

Participants will abstain from all concomitant treatments, except for the treatment of adverse events and hormonal contraceptives that meet the requirements of this study in participants who are WOCBP (see Appendix 4).

Use of prescription or nonprescription drugs and dietary and herbal supplements are prohibited within 7 days or 5 half-lives (whichever is longer) prior to the first dose of study intervention. Limited use of nonprescription medications that are not believed to affect participant safety or the overall results of the study may be permitted on a case-by-case basis following approval by the sponsor. Acetaminophen/paracetamol may be used at doses of ≤1 g/day.

As nirmatrelvir and ritonavir are both primarily metabolized by CYP3A4, concomitant use of any medications or substances that are strong inducers of CYP3A4 are prohibited within 28 days prior to dosing of study intervention. Additionally, ritonavir and nirmatrelvir are inhibitors of CYP3A4. Therefore, medications highly dependent on CYP3A4 for clearance and for which elevated plasma concentrations may be associated with serious and/or life-threatening events are not permitted during dosing of nirmatrelvir/ritonavir, through 4 days after the last dose of nirmatrelvir/ritonavir.

All concomitant treatments taken during the study must be recorded with indication, daily dose, and start and stop dates of administration. All participants will be questioned about concomitant treatment at each clinic visit.

Treatments taken within 28 days before the first dose of study intervention will be documented as a prior treatment. Treatments taken after the first dose of study intervention will be documented as concomitant treatments.

6.9.1. Rescue Medicine

There is no rescue therapy to reverse the AEs observed with nirmatrelvir or ritonavir; standard medical supportive care must be provided to manage the AEs.

7. DISCONTINUATION OF STUDY INTERVENTION AND PARTICIPANT DISCONTINUATION/WITHDRAWAL

7.1. Discontinuation of Study Intervention

It may be necessary for a participant to permanently discontinue study intervention. Reasons for permanent discontinuation of study intervention include the following.

- AE requiring discontinuation in investigator's view;
- Pregnancy;
- Positive COVID-19 test.

If study intervention is permanently discontinued, the participant will not remain in the study for further evaluation. See the SoA for data to be collected at the time of discontinuation of study intervention.

7.1.1. ECG Changes

A participant who meets either bulleted criterion based on the average of triplicate ECG readings will be withdrawn from the study intervention.

- QTcF >500 msec;
- Change from baseline: QTcF >60 msec.

If a clinically significant finding is identified (including, but not limited to, changes from baseline in QTcF after enrollment), the investigator or qualified designee will determine if the participant can continue in the study and if any change in participant management is needed. This review of the ECG printed at the time of collection must be documented. Any new clinically relevant finding should be reported as an AE.

7.1.2. Potential Cases of Acute Kidney Injury

Abnormal values in SCr concurrent with presence or absence of increase in BUN that meet the criteria below, in the absence of other causes of kidney injury, are considered potential cases of acute kidney injury and should be considered important medical events.

An increase of ≥0.3 mg/dL (or ≥26.5 µmol/L) in SCr level relative to the participant's own baseline measurement should trigger another assessment of SCr as soon as practically feasible, preferably within 48 hours from awareness.

If the second assessment (after the first observations of ≥0.3 mg/dL [or ≥26.5 µmol/L] in SCr relative to the participant's own baseline measurement) is ≥0.4 mg/dL (or ≥35.4 µmol/L), the participant should be discontinued from the study and adequate, immediate, supportive measures taken to correct apparent acute kidney injury.

Participants should return to the investigator site and be evaluated as soon as possible, preferably within 48 hours from awareness of the second assessment confirming abnormal SCr result. This evaluation should include laboratory tests, detailed history, and physical assessment. In addition to repeating SCr, laboratory tests should include serum BUN, serum creatine kinase, and serum electrolytes (including at a minimum potassium, sodium, phosphate/phosphorus, and calcium), in addition to urinary dipstick, urine microscopic examination, and urinary indices. All cases confirmed on repeat testing as meeting the laboratory criteria for acute kidney injury, with no other cause(s) of laboratory abnormalities identified, should be considered potential cases of drug-induced kidney injury irrespective of availability of all the results of the investigations performed to determine etiology of the abnormal SCr. If ≥2 healthy participants are noted to have 2 *consecutive* SCr results of ≥0.3 mg/dL (or ≥26.5 µmol/L), an assessment of whether the finding may be considered an adverse drug reaction should be undertaken.

7.1.3. Stopping Rules

Dosing will be halted at any time if 1 of the following circumstances occurs and it is determined by the investigator that the occurrence is at least possibly related to the administration of study intervention:

- A SAE (eg, a serious AE considered at least possibly related to study intervention administration) in 1 participant.
- Severe NSAE (eg, severe NSAEs considered at least possibly related to study intervention administration) in 2 participants, independent of whether it is within or not within the same SOC.

When stopping rules are met, a data review will be conducted by the sponsor and investigator. If integrated analysis of available data leads to the conclusion that further dosing is justified, an amendment to the protocol may be required if additional safety monitoring is warranted.

7.2. Participant Discontinuation/Withdrawal From the Study

A participant may withdraw from the study at any time at their own request. Reasons for discontinuation from the study include the following:

- Refused further study procedures;
- Lost to follow-up;
- Death;

- Study terminated by sponsor;
- Investigator's decision;
- Pregnancy.

At the time of discontinuing from the study, if possible, an early discontinuation visit should be conducted. See the SoA for assessments to be collected at the time of study discontinuation and follow-up and for any further evaluations that need to be completed.

The early discontinuation visit applies only to participants who are enrolled/randomized and then are prematurely withdrawn from the study. Participants should be questioned regarding their reason for withdrawal.

The participant will be permanently discontinued from the study intervention and the study at that time.

If a participant withdraws from the study, they may request destruction of any remaining samples taken and not tested, and the investigator must document any such requests in the site study records and notify the sponsor accordingly.

If the participant withdraws from the study and also withdraws consent (see Section 7.2.1) for disclosure of future information, no further evaluations will be performed and no additional data will be collected. The sponsor may retain and continue to use any data collected before such withdrawal of consent.

7.2.1. Withdrawal of Consent

Participants who request to discontinue receipt of study intervention will remain in the study and must continue to be followed for protocol-specified follow-up procedures. The only exception to this is when a participant specifically withdraws consent for any further contact with them or persons previously authorized by the participant to provide this information. Participants should notify the investigator in writing of the decision to withdraw consent from future follow-up, whenever possible. The withdrawal of consent should be explained in detail in the medical records by the investigator, as to whether the withdrawal is only from further receipt of study intervention or also from study procedures and/or posttreatment study follow-up, and entered on the appropriate CRF page. In the event that vital status (whether the participant is alive or dead) is being measured, publicly available information should be used to determine vital status only as appropriately directed in accordance with local law.

7.3. Lost to Follow-up

A participant will be considered lost to follow-up if the participant repeatedly fails to return for scheduled visits and is unable to be contacted by the study site.

The following actions must be taken if a participant fails to attend a required study visit:

- The site must attempt to contact the participant and reschedule the missed visit as soon as possible. Counsel the participant on the importance of maintaining the assigned visit schedule and ascertain whether the participant wishes to and/or should continue in the study;

- Before a participant is deemed lost to follow-up, the investigator or designee must make every effort to regain contact with the participant (where possible, 3 telephone calls and, if necessary, a certified letter to the participant's last known mailing address or local equivalent methods). These contact attempts should be documented in the participant's medical record;

- Should the participant continue to be unreachable, the participant will be considered to have withdrawn from the study.

8. STUDY ASSESSMENTS AND PROCEDURES

8.1. Administrative Procedures

The investigator (or an appropriate delegate at the investigator site) must obtain a signed and dated ICD before performing any study-specific procedures.

Study procedures and their timing are summarized in the SoA. Protocol waivers or exemptions are not allowed.

Safety issues should be discussed with the sponsor immediately upon occurrence or awareness to determine whether the participant should continue or discontinue study intervention.

Adherence to the study design requirements, including those specified in the SoA, is essential and required for study conduct.

All screening evaluations must be completed and reviewed to confirm that potential participants meet all eligibility criteria. The investigator will maintain a screening log to record details of all participants screened and to confirm eligibility or record reasons for screening failure, as applicable.

Participants will be screened within 28 days prior to administration of the study intervention to confirm that they meet the study population criteria for the study. If the time between screening and dosing exceeds 28 days as a result of unexpected delays (eg, delayed drug shipment), then participants do not require rescreening if the laboratory results obtained prior to first dose administration meet eligibility criteria.

Every effort should be made to ensure that protocol-required tests and procedures are completed as described. However, it is anticipated that from time to time there may be circumstances outside the control of the investigator that may make it unfeasible to perform

the test. In these cases, the investigator must take all steps necessary to ensure the safety and well-being of the participant. When a protocol-required test cannot be performed, the investigator will document the reason for the missed test and any corrective and preventive actions that they have taken to ensure that required processes are adhered to as soon as possible. The study team must be informed of these incidents in a timely manner.

If an IV catheter is utilized for blood sample collections, ECGs and vital sign assessments (PR and BP) should be collected prior to the insertion of the catheter.

For samples being collected and shipped, detailed collection, processing, storage, and shipment instructions and contact information will be provided to the investigator site prior to initiation of the study.

The total blood sampling volume for individual participants in this study is approximately 360 mL. The actual collection times of blood sampling may change. Additional blood samples may be taken for safety assessments at times specified by Pfizer, provided the total volume taken during the study does not exceed 550 mL during any period of 56 consecutive days.

To prepare for study participation, participants will be instructed on the information in the Lifestyle Considerations and Concomitant Therapy sections of the protocol.

8.2. Efficacy Assessments

Not applicable**.**

8.3. Safety Assessments

Planned time points for all safety assessments are provided in the SoA. Unscheduled safety measurements may be obtained at any time during the study to assess any perceived safety issues.

8.3.1. Physical Examinations

A complete physical examination will include, at a minimum, head, ears, eyes, nose, mouth, skin, heart and lung examinations, lymph nodes, and gastrointestinal, musculoskeletal, and neurological systems.

A brief physical examination will include, at a minimum, assessments of general appearance, the respiratory and cardiovascular systems, and participant-reported symptoms.

Physical examinations may be conducted by a physician, trained physician's assistant, or nurse practitioner as acceptable according to local regulation.

Height and weight will also be measured and recorded as per the SoA. For measuring weight, a scale with appropriate range and resolution is used and must be placed on a stable, flat surface. Participants must remove shoes, bulky layers of clothing, and jackets so that only

light clothing remains. They must also remove the contents of their pockets and remain still during measurement of weight.

Physical examination findings collected during the study will be considered source data and will not be required to be reported, unless otherwise noted. Any untoward physical examination findings that are identified during the active collection period and meet the definition of an AE or SAE (Appendix 3) must be reported according to the processes in Sections 8.4.1 to 8.4.3.

8.3.2. Vital Signs

8.3.2.1. Blood Pressure and Pulse Rate

Supine BP, PR will be measured with the participant's arm supported at the level of the heart and recorded to the nearest mm Hg after approximately 5 minutes of rest. The same arm (preferably the dominant arm) will be used throughout the study. Participants should be instructed not to speak during measurements.

The same properly sized and calibrated BP cuff will be used to measure BP each time. The use of an automated device for measuring BP and pulse rate is acceptable; however, when done manually, pulse rate will be measured in the brachial/radial artery for at least 30 seconds. When the timing of these measurements coincides with a blood collection, BP and PR should be obtained prior to the nominal time of the blood collection.

Additional collection times, or changes to collection times, of BP and PR will be permitted, as necessary, to ensure appropriate collection of safety data.

Any untoward vital sign findings that are identified during the active collection period and meet the definition of an AE or SAE (Appendix 3) must be reported according to the processes in Sections 8.4.1 to 8.4.3.

8.3.2.2. Temperature

Temperature will be measured orally. No eating, drinking, or smoking is allowed for 15 minutes prior to the measurement.

8.3.3. Electrocardiograms

Standard 12-lead ECGs utilizing limb leads (with a 10-second rhythm strip) should be collected at times specified in the SoA section of this protocol using an ECG machine that automatically calculates the HR and measures PR interval, QT interval, QTcF, and QRS complex. Alternative lead placement methodology using torso leads (eg, Mason-Likar) should not be used given the potential risk of discrepancies with ECGs acquired using standard limb lead placement. All scheduled ECGs should be performed after the participant has rested quietly for at least 5 minutes in a supine position.

To ensure safety of the participants, a qualified individual at the investigator site will make comparisons to baseline measurements. Additional ECG monitoring will occur if a) a post

dose QTcF interval is increased by ≥60 msec from the baseline **and** is >450 msec; or b) an absolute QT value is ≥500 msec for any scheduled ECG. If either of these conditions occurs, then 2 additional ECGs will be collected approximately 2 to 4 minutes apart to confirm the original measurement. If the QTc values from these repeated ECGs remain above the threshold value, then a single ECG must be repeated at least hourly until QTc values from 2 successive ECGs fall below the threshold value that triggered the repeat measurement.

If a) a post dose QTcF interval remains ≥60 msec from the baseline **and** is >450 msec; or b) an absolute QT value is ≥500 msec for any scheduled ECG for greater than 4 hours (or sooner, at the discretion of the investigator); or c) QTcF intervals get progressively longer, the participant should undergo continuous ECG monitoring. A cardiologist should be consulted if QTcF intervals do not return to less than the criteria listed above after 8 hours of monitoring (or sooner, at the discretion of the investigator).

In some cases, it may be appropriate to repeat abnormal ECGs to rule out improper lead placement as contributing to the ECG abnormality. It is important that leads be placed in the same positions each time in order to achieve precise ECG recordings. If a machine-read QTc value is prolonged, as defined above, repeat measurements may not be necessary if a qualified medical provider's interpretation determines that the QTcF values are in the acceptable range.

ECG values of potential clinical concern are listed in Appendix 8.

8.3.4. Clinical Safety Laboratory Assessments

See Appendix 2 for the list of clinical safety laboratory tests to be performed and the SoA for the timing and frequency. All protocol-required laboratory assessments, as defined in Appendix 2, must be conducted in accordance with the laboratory manual and the SoA. Unscheduled clinical laboratory measurements may be obtained at any time during the study to assess any perceived safety issues.

The investigator must review the laboratory report, document this review, and record any clinically significant changes occurring during the study in the AE section of the CRF. Clinically significant abnormal laboratory test findings are those that are not associated with the underlying disease, unless judged by the investigator to be more severe than expected for the participant's condition.

All laboratory tests with values considered clinically significant and abnormal during participation in the study or within 48 hours after the last dose of study intervention should be repeated until the values return to normal or baseline or are no longer considered clinically significant by the investigator or study medical monitor.

If such values do not return to normal/baseline within a period of time judged reasonable by the investigator, the etiology should be identified and the sponsor notified.

See Appendix 6 for suggested actions and follow-up assessments in the event of potential DILI.

See Appendix 7 for instructions for laboratory testing to monitor kidney function and reporting laboratory test abnormalities.

Participants may undergo random urine drug testing at the discretion of the investigator. Drug testing conducted prior to dosing must be negative for participants to receive study intervention.

8.3.5. COVID-19 Specific Assessments

Participants will be tested for COVID-19 infection by PCR prior to being admitted to the PCRU for confinement and a subsequent COVID-19 test will be performed after 4 days (ie, upon completion of 4 × 24 hours in house), or if they develop COVID-19-like symptoms. Additional testing may be required by local regulations or by the principal investigator.

8.3.6. Pregnancy Testing

A serum pregnancy test is required at screening. Following screening, pregnancy tests may be urine or serum tests, and must have a sensitivity of at least 25 mIU/mL. Pregnancy tests will be performed in WOCBP at the times listed in the SoA. Following a negative pregnancy test result at screening, appropriate contraception must be commenced and a second negative pregnancy test result will be required at the baseline visit prior to the participant's receiving the study intervention. Pregnancy tests will also be done whenever 1 menstrual cycle is missed during the active treatment period (or when potential pregnancy is otherwise suspected) and at the end of the study. Pregnancy tests may also be repeated if requested by IRBs/ECs or if required by local regulations. If a urine test cannot be confirmed as negative (eg, an ambiguous result), a serum pregnancy test is required. In such cases, the participant must be excluded if the serum pregnancy result is positive.

8.4. Adverse Events, Serious Adverse Events, and Other Safety Reporting

The definitions of an AE and an SAE can be found in Appendix 3.

AEs may arise from symptoms or other complaints reported to the investigator by the participant (or, when appropriate, by a caregiver, surrogate, or the participant's legally authorized representative), or they may arise from clinical findings of the investigator or other healthcare providers (clinical signs, test results, etc.).

The investigator and any qualified designees are responsible for detecting, documenting, and recording events that meet the definition of an AE or SAE and remain responsible to pursue and obtain adequate information both to determine the outcome and to assess whether the event meets the criteria for classification as an SAE or caused the participant to discontinue the study intervention (see Section 7.1).

During the active collection period as described in Section 8.4.1, each participant will be questioned about the occurrence of AEs in a nonleading manner.

In addition, the investigator may be requested by Pfizer Safety to obtain specific follow-up information in an expedited fashion.

8.4.1. Time Period and Frequency for Collecting AE and SAE Information

The time period for actively eliciting and collecting AEs and SAEs ("active collection period") for each participant begins from the time the participant provides informed consent, which is obtained before the participant's participation in the study (ie, before undergoing any study-related procedure and/or receiving study intervention), through and including a minimum of 28 calendar days, except as indicated below, after the last administration of the study intervention.

Follow-up by the investigator continues throughout and after the active collection period and until the AE or SAE or its sequelae resolve or stabilize at a level acceptable to the investigator.

When a clinically important AE remains ongoing at the end of the active collection period, follow-up by the investigator continues until the AE or SAE or its sequelae resolve or stabilize at a level acceptable to the investigator and Pfizer concurs with that assessment.

For participants who are screen failures, the active collection period ends when screen failure status is determined.

If the participant withdraws from the study and also withdraws consent for the collection of future information, the active collection period ends when consent is withdrawn.

If a participant permanently discontinues or temporarily discontinues study intervention because of an AE or SAE, the AE or SAE must be recorded on the CRF and the SAE reported using the CT SAE Report Form.

Investigators are not obligated to actively seek information on AEs or SAEs after the participant has concluded study participation. However, if the investigator learns of any SAE, including a death, at any time after a participant has completed the study, and they consider the event to be reasonably related to the study intervention, the investigator must promptly report the SAE to Pfizer using the CT SAE Report Form.

8.4.1.1. Reporting SAEs to Pfizer Safety

All SAEs occurring in a participant during the active collection period as described in Section 8.4.1 are reported to Pfizer Safety on the CT SAE Report Form immediately upon awareness and under no circumstance should this exceed 24 hours, as indicated in Appendix 3. The investigator will submit any updated SAE data to the sponsor within 24 hours of its being available.

8.4.1.2. Recording Nonserious AEs and SAEs on the CRF

All nonserious AEs and SAEs occurring in a participant during the active collection period, which begins after obtaining informed consent as described in Section 8.4.1 will be recorded on the AE section of the CRF.

The investigator is to record on the CRF all directly observed and all spontaneously reported AEs and SAEs reported by the participant.

As part of ongoing safety reviews conducted by the sponsor, any nonserious AE that is determined by the sponsor to be serious will be reported by the sponsor as an SAE. To assist in the determination of case seriousness, further information may be requested from the investigator to provide clarity and understanding of the event in the context of the clinical study.

Reporting of AEs and SAEs for participants who fail screening are subject to the CRF requirements as described in Section 5.4.

8.4.2. Method of Detecting AEs and SAEs

The method of recording, evaluating, and assessing causality of AEs and SAEs and the procedures for completing and transmitting SAE reports are provided in Appendix 3.

Care will be taken not to introduce bias when detecting AEs and/or SAEs. Open-ended and nonleading verbal questioning of the participant is the preferred method to inquire about AE occurrences.

8.4.3. Follow-Up of AEs and SAEs

After the initial AE or SAE report, the investigator is required to proactively follow each participant at subsequent visits/contacts. For each event, the investigator must pursue and obtain adequate information until resolution, stabilization, the event is otherwise explained, or the participant is lost to follow-up (as defined in Section 7.3).

In general, follow-up information will include a description of the event in sufficient detail to allow for a complete medical assessment of the case and independent determination of possible causality. Any information relevant to the event, such as concomitant medications and illnesses, must be provided. In the case of a participant death, a summary of available autopsy findings must be submitted as soon as possible to Pfizer Safety.

Further information on follow-up procedures is provided in Appendix 3.

8.4.4. Regulatory Reporting Requirements for SAEs

Prompt notification by the investigator to the sponsor of an SAE is essential so that legal obligations and ethical responsibilities toward the safety of participants and the safety of a study intervention under clinical investigation are met.

The sponsor has a legal responsibility to notify both the local regulatory authority and other regulatory agencies about the safety of a study intervention under clinical investigation. The sponsor will comply with country-specific regulatory requirements relating to safety reporting to the regulatory authority, IRBs/ECs, and investigators.

Investigator safety reports must be prepared for SUSARs according to local regulatory requirements and sponsor policy and forwarded to investigators as necessary.

An investigator who receives SUSARs or other specific safety information (eg, summary or listing of SAEs) from the sponsor will review and then file it along with the SRSD(s) for the study and will notify the IRB/EC, if appropriate according to local requirements.

8.4.5. Environmental Exposure, Exposure During Pregnancy or Breastfeeding, and Occupational Exposure

Environmental exposure occurs when a person not enrolled in the study as a participant receives unplanned direct contact with or exposure to the study intervention. Such exposure may or may not lead to the occurrence of an AE or SAE. Persons at risk for environmental exposure include healthcare providers, family members, and others who may be exposed. An environmental exposure may include EDP, EDB, and occupational exposure.

Any such exposures to the study intervention under study are reportable to Pfizer Safety within 24 hours of investigator awareness.

8.4.5.1. Exposure During Pregnancy

An EDP occurs if:

- A female participant is found to be pregnant while receiving or after discontinuing study intervention.
- A male participant who is receiving or has discontinued study intervention exposes a female partner prior to or around the time of conception.
- A female nonparticipant is found to be pregnant while being exposed or having been exposed to study intervention because of environmental exposure. Below are examples of environmental EDP:
    - A female family member or healthcare provider reports that she is pregnant after having been exposed to the study intervention by ingestion, inhalation, or skin contact.
    - A male family member or healthcare provider who has been exposed to the study intervention by ingestion, inhalation, or skin contact then inseminates his female partner prior to or around the time of conception.

The investigator must report EDP to Pfizer Safety within 24 hours of the investigator's awareness, irrespective of whether an SAE has occurred. The initial information submitted

should include the anticipated date of delivery (see below for information related to termination of pregnancy).

- If EDP occurs in a participant or a participant's partner, the investigator must report this information to Pfizer Safety on the CT SAE Report Form and an EDP Supplemental Form, regardless of whether an SAE has occurred. Details of the pregnancy will be collected after the start of study intervention and until 28 days after the last dose.

- If EDP occurs in the setting of environmental exposure, the investigator must report information to Pfizer Safety using the CT SAE Report Form and EDP Supplemental Form. Since the exposure information does not pertain to the participant enrolled in the study, the information is not recorded on a CRF; however, a copy of the completed CT SAE Report Form is maintained in the investigator site file.

Follow-up is conducted to obtain general information on the pregnancy and its outcome for all EDP reports with an unknown outcome. The investigator will follow the pregnancy until completion (or until pregnancy termination) and notify Pfizer Safety of the outcome as a follow-up to the initial EDP Supplemental Form. In the case of a live birth, the structural integrity of the neonate can be assessed at the time of birth. In the event of a termination, the reason(s) for termination should be specified and, if clinically possible, the structural integrity of the terminated fetus should be assessed by gross visual inspection (unless preprocedure test findings are conclusive for a congenital anomaly and the findings are reported).

Abnormal pregnancy outcomes are considered SAEs. If the outcome of the pregnancy meets the criteria for an SAE (ie, ectopic pregnancy, spontaneous abortion, intrauterine fetal demise, neonatal death, or congenital anomaly in a live-born baby, a terminated fetus, an intrauterine fetal demise, or a neonatal death), the investigator should follow the procedures for reporting SAEs. Additional information about pregnancy outcomes that are reported to Pfizer Safety as SAEs follows:

- Spontaneous abortion including miscarriage and missed abortion should be reported as an SAE;

- Neonatal deaths that occur within 1 month of birth should be reported, without regard to causality, as SAEs. In addition, infant deaths after 1 month should be reported as SAEs when the investigator assesses the infant death as related or possibly related to exposure to the study intervention.

Additional information regarding the EDP may be requested by the sponsor. Further follow-up of birth outcomes will be handled on a case-by-case basis (eg, follow-up on preterm infants to identify developmental delays). In the case of paternal exposure, the investigator will provide the participant with the Pregnant Partner Release of Information Form to deliver to his partner. The investigator must document in the source documents that

the participant was given the Pregnant Partner Release of Information Form to provide to his partner.

8.4.5.2. Exposure During Breastfeeding

An EDB occurs if:

- A female participant is found to be breastfeeding while receiving or after discontinuing study intervention.
- A female nonparticipant is found to be breastfeeding while being exposed or having been exposed to study intervention (ie, environmental exposure). An example of environmental EDB is a female family member or healthcare provider who reports that she is breastfeeding after having been exposed to the study intervention by ingestion, inhalation, or skin contact.

The investigator must report EDB to Pfizer Safety within 24 hours of the investigator's awareness, irrespective of whether an SAE has occurred. The information must be reported using the CT SAE Report Form. When EDB occurs in the setting of environmental exposure, the exposure information does not pertain to the participant enrolled in the study**,** so the information is not recorded on a CRF. However, a copy of the completed CT SAE Report Form is maintained in the investigator site file.

An EDB report is not created when a Pfizer drug specifically approved for use in breastfeeding women (eg, vitamins) is administered in accordance with authorized use. However, if the infant experiences an SAE associated with such a drug, the SAE is reported together with the EDB.

8.4.5.3. Occupational Exposure

The investigator must report any instance of occupational exposure to Pfizer Safety within 24 hours of the investigator's awareness using the CT SAE Report Form regardless of whether there is an associated SAE. Since the information about the occupational exposure does not pertain to a participant enrolled in the study, the information is not recorded on a CRF; however, a copy of the completed CT SAE Report Form must be maintained in the investigator site file.

8.4.6. Cardiovascular and Death Events

Not applicable.

8.4.7. Disease-Related Events and/or Disease-Related Outcomes Not Qualifying as AEs or SAEs

Not applicable.

8.4.8. Adverse Events of Special Interest

Not applicable.

8.4.8.1. Lack of Efficacy

This section is not applicable because efficacy is not expected in the study population.

8.4.9. Medical Device Deficiencies

Not applicable.

8.4.9.1. Time Period for Detecting Medical Device Deficiencies

Not applicable.

8.4.9.2. Follow-Up of Medical Device Deficiencies

Not applicable.

8.4.9.3. Prompt Reporting of Device Deficiencies to the Sponsor

Not applicable.

8.4.9.4. Regulatory Reporting Requirements for Device Deficiencies

Not applicable.

8.4.10. Medication Errors

Medication errors may result from the administration or consumption of the study intervention by the wrong participant, or at the wrong time, or at the wrong dosage strength.

Medication errors are recorded and reported as follows:

Recorded on the Medication Error Page of the CRF	Recorded on the Adverse Event Page of the CRF	Reported on the CT SAE Report Form to Pfizer Safety Within 24 Hours of Awareness
All (regardless of whether associated with an AE)	Any AE or SAE associated with the medication error	Only if associated with an SAE

Medication errors include:

- Medication errors involving participant exposure to the study intervention;
- Potential medication errors or uses outside of what is foreseen in the protocol that do or do not involve the study participant.

Such medication errors occurring to a study participant are to be captured on the medication error page of the CRF, which is a specific version of the AE page.

Whether or not the medication error is accompanied by an AE, as determined by the investigator, the medication error is recorded on the medication error page of the CRF and, if applicable, any associated AE(s), serious and nonserious, are recorded on the AE page of the CRF.

In the event of a medication dosing error, the sponsor should be notified within 24 hours.

Medication errors should be reported to Pfizer Safety within 24 hours on a CT SAE Report Form **only when associated with an SAE.**

8.5. Pharmacokinetics

8.5.1. Plasma for Analysis of Nirmatrelvir and Ritonavir

Blood samples of approximately 4 mL, to provide approximately 1.5 mL plasma, will be collected for measurement of plasma concentrations of nirmatrelvir and ritonavir as specified in the SoA. Instructions for the collection and handling of biological samples will be provided in the laboratory manual or by the sponsor. The actual date and time (24-hour clock time) of each sample will be recorded.

The actual times may change, but the number of samples will remain the same. All efforts will be made to obtain the samples at the exact nominal time relative to dosing. Collection of samples up to and including 10 hours after dose administration that are obtained within 10% of the nominal time relative to dosing (eg, within 6 minutes of a 60-minute sample) will not be captured as a protocol deviation, as long as the exact time of the collection is noted on the source document and the CRF. Collection of samples more than 10 hours after dose administration that are obtained ≤1 hour away from the nominal time relative to dosing will not be captured as a protocol deviation, as long as the exact time of the collection is noted on the source document and the CRF.

CCI [redacted]

Genetic analyses will not be performed on these plasma samples unless consent for this was included in the informed consent. Participant confidentiality will be maintained.

CCI [redacted]

The PK samples must be processed and shipped as indicated in the instructions provided to the investigator site to maintain sample integrity. Any deviations from the PK sample handling procedure (eg, sample collection and processing steps, interim storage or shipping conditions), including any actions taken, must be documented and reported to the sponsor.

On a case-by-case basis, the sponsor may make a determination as to whether sample integrity has been compromised.

Any changes in the timing or addition of time points for any planned study assessments must be documented and approved by the relevant study team member and then archived in the sponsor and site study files, but will not constitute a protocol amendment. The IRB/EC will be informed of any safety issues that require alteration of the safety monitoring scheme or amendment of the ICD.

CCI [redacted]

CCI [redacted]

CCI

[redacted]

8.6. Genetics

8.6.1. Specified Genetics

Specified genetic analyses are not evaluated in this study.

8.6.2. Retained Research Samples for Genetics

A 4-mL blood sample optimized for DNA isolation Prep D1 will be collected according to the SoA, as local regulations and IRBs/ECs allow.

Retained Research Samples may be used for research related to the study intervention(s). Genes and other analytes (eg, proteins, RNA, nondrug metabolites) may be studied using the retained samples.

See Appendix 5 for information regarding genetic research. Details on processes for collection and shipment of these samples can be found in the laboratory manual and supporting documentation.

8.7. Biomarkers

Biomarkers are not evaluated in this study.

8.7.1. Specified Gene Expression (RNA) Research

Specified gene expression (RNA) research is not included in this study.

8.7.2. Specified Protein Research

Specified protein research is not included in this study.

8.7.3. Specified Metabolomic Research

Specified metabolomic research is not included in this study.

8.7.4. Retained Research Samples for Biomarkers

These Retained Research Samples will be collected in this study:

- 10 mL whole blood (Prep B2 optimized for serum).

Retained Research Samples will be collected as local regulations and IRB/ECs allow according to the SoA.

Retained Research Samples may be used for research related to the study intervention(s). Genes and other analytes (eg, proteins, RNA, nondrug metabolites) may be studied using the retained samples.

See Appendix 5 for information regarding genetic research. Details on processes for collection and shipment of these samples can be found in the laboratory manual and supporting documentation.

8.8. Immunogenicity Assessments

Immunogenicity assessments are not included in this study.

8.9. Health Economics

Health economics/medical resource utilization and health economics parameters are not evaluated in this study.

CCI [redacted]

9. STATISTICAL CONSIDERATIONS

Detailed methodology for summary and statistical analyses of the data collected in this study is outlined here and further detailed in the SAP, which will be maintained by the sponsor. The SAP may modify what is outlined in the protocol where appropriate; however, any major modifications of the primary endpoint definitions or their analyses will also be reflected in a protocol amendment.

9.1. Statistical Hypotheses

There are no statistical hypotheses for this study.

9.2. Analysis Sets

For purposes of analysis, the following analysis sets are defined:

Participant Analysis Set	Description
Enrolled	"Enrolled" means a participant's, or their legally authorized representative's, agreement to participate in a clinical study following completion of the informed consent process and randomization. A participant will be considered enrolled if the informed consent is not withdrawn prior to participating in any study activity after screening. Potential participants who are screened for the purpose of determining eligibility for the study, but do not participate in the study, are not considered enrolled, unless otherwise specified by the protocol.
Safety analysis set	All participants who take at least 1 dose of study intervention. Participants will be analyzed according to the product they actually received.
PK concentration set	All participants who take at least 1 dose of study intervention and in whom at least 1 plasma concentration value is reported.
PK parameter set	All participants who take at least 1 dose of study intervention and in whom at least 1 of the plasma PK parameters of primary interest are reported.

9.3. Statistical Analyses

The SAP will be developed and finalized before any analyses are performed and will describe the analyses and procedures for accounting for missing, unused, and spurious data. This section is a summary of the planned statistical analyses of the primary and secondary endpoints.

9.3.1. Pharmacokinetic Analyses

9.3.1.1. Derivation of Pharmacokinetic Parameters

Plasma PK parameters of nirmatrelvir and ritonavir will be derived (as data permits) from the concentration-time data using standard noncompartmental methods as outlined in Table 2. Actual PK sampling times will be used in the derivation of PK parameters. In the case that actual PK sampling times are not available, nominal PK sampling time will be used in the derivation of PK parameters.

Table 2. Plasma Nirmatrelvir and Ritonavir PK Parameters Definitions

Parameter	Definition	Method of Determination
AUC_{inf}*	Area under the concentration-time curve from time 0 extrapolated to infinity	$AUC_{last} + (C_{last}*/k_{el})$, where C_{last}* is the predicted plasma concentration at the last quantifiable time point from the log-linear regression analysis
AUC_{last}	Area under the plasma concentration-time curve from time 0 to the time of the last measurable concentration (C_{last}).	Linear/Log trapezoidal method.
AUC_{12}	Area under the concentration-time curve from time 0 to 12 hours	Linear/Log trapezoidal method.
C_{max}	Maximum observed concentration	Observed directly from data
T_{max}	Time for C_{max}	Observed directly from data as time of first occurrence
$t_{½}$*	Terminal half-life	$Log_e(2)/k_{el}$, where k_{el} is the terminal phase rate constant calculated by a linear regression of the loglinear concentration-time curve. Only those data points judged to describe the terminal loglinear decline will be used in the regression.
CL/F*	Apparent clearance of drug from eg, plasma	$Dose/AUC_{inf}$
V_z/F*	Apparent volume of distribution	$Dose/(AUC_{inf} \bullet k_{el})$

*If data permits.

Additionally, saliva concentration by nominal collection time and by treatment will be provided, if collected and analyzed. The ratio of saliva/plasma concentrations will be listed for each time point saliva is collected.

9.3.2. Statistical Methods for PK Data

For the primary objective, natural log transformed AUC_{inf} (if data permits), AUC_{last} and C_{max} for nirmatrelvir and ritonavir will be analyzed using a mixed effect model with sequence, period and treatment as fixed effects and participant within sequence as a random effect. Estimates of the adjusted mean differences (Test-Reference) and corresponding 90% confidence intervals will be obtained from the model. The adjusted mean differences and 90% confidence intervals for the differences will be exponentiated to provide estimates of the ratio of adjusted geometric means (Test/Reference) and 90% confidence intervals for the ratios. Treatment A will be the Reference treatment while Treatments B, C, D and E will be the Test treatments.

PK parameters, including plasma AUC_{inf} (if data permits), AUC_{last}, C_{max}, and CCI (if data permits) of nirmatrelvir and ritonavir will be summarized descriptively by treatment. For AUC_{inf} (if data permits), AUC_{last}, and C_{max}, a listing of the individual participant ratios (Test/Reference) will be provided. Box and whisker plots for AUC_{inf} (if data permits), AUC_{last}, and C_{max}, will be plotted by treatment.

The plasma concentrations of nirmatrelvir and ritonavir will be listed and descriptively summarized by nominal PK sampling time and treatment. Individual participant, as well as mean and median profiles of the plasma concentration time data will be plotted by treatment using actual (for individual) and nominal (for mean and median) times respectively. Mean and median profiles will be presented on both linear and semi-log scales.

Additional specifications about the tables, listings, and figures will be outlined in the SAP.

9.3.3. Other Safety Analyses

All safety analyses will be performed on the safety population.

AEs, ECGs, BP, PR, and safety laboratory data will be reviewed and summarized on an ongoing basis during the study to evaluate the safety of participants. Any clinical laboratory, ECG, BP, and PR abnormalities of potential clinical concern will be described. Safety data will be presented in tabular and/or graphical format and summarized descriptively, where appropriate.

Medical history and PE and neurological examination information, as applicable, collected during the course of the study will be considered source data and will not be required to be reported, unless otherwise noted. However, any untoward findings identified on physical and/or neurological examinations conducted during the active collection period will be captured as AEs, if those findings meet the definition of an AE. Data collected at Screening that are used for inclusion/exclusion criteria, such as laboratory data, ECGs, and vital signs, will be considered source data, and will not be required to be reported, unless otherwise noted. Demographic data collected at Screening will be reported.

9.3.4. Other Analyse(s)

9.3.4.1. Biomarker Assessment

Biomarker data from Retained Research Samples may be collected as per SoA, during or after the trial and retained for future analyses; the results of such analyses are not planned to be included in the CSR.

9.4. Interim Analyses

No formal interim analysis will be conducted for this study. As this is an open-label study, the sponsor may conduct unblinded reviews of the data during the course of the study for the purpose of safety assessment, facilitating PK/PD modeling, and/or supporting clinical development.

9.5. Sample Size Determination

A sample size of 15 evaluable participants will provide 90% CIs for the difference between treatments of ± 0.1175 and ± 0.0924 on the natural log scale for AUC_{inf} and C_{max} for nirmatrelvir, respectively, with 80% coverage probability.

Parameter	Estimated Effect (100*Test/Reference)	90% CI	CI Width
AUC_{inf}	85%	0.7558, 0.9560	0.2002
	90%	0.8002, 1.0122	0.2119
	95%	0.8447, 1.0684	0.2237
	100%	0.8892, 1.1246	0.2355
	105%	0.9336, 1.1809	0.2473
	110%	0.9781, 1.2371	0.2590
	115%	1.0225, 1.2933	0.2708
C_{max}	85%	0.7750, 0.9323	0.1573
	90%	0.8206, 0.9871	0.1665
	95%	0.8662, 1.0420	0.1758
	100%	0.9117, 1.0968	0.1851
	105%	0.9573, 1.1516	0.1943
	110%	1.0029, 1.2065	0.2036
	115%	1.0485, 1.2613	0.2128

These estimates are based on the assumption that within-participant standard deviations are 0.1752 and 0.1378 for $lnAUC_{inf}$ and lnC_{max}, respectively, as obtained from clinical Studies C4671008 and C4671014 in healthy participants.

In addition, a sample size of 15 evaluable participants will provide 90% CIs for the difference between treatments of ±0.1625 and ±0.2201 on the natural log scale for AUC_{inf} and C_{max} for ritonavir, respectively, with 80% coverage probability.

Parameter	Estimated Effect (100*Test/Reference)	90% CI	CI Width
AUC_{inf}	85%	0.7225, 1.0000	0.2775
	90%	0.7650, 1.0588	0.2938
	95%	0.8075, 1.1177	0.3102
	100%	0.8500, 1.1765	0.3265
	105%	0.8925, 1.2353	0.3428
	110%	0.9350, 1.2941	0.3591
	115%	0.9775, 1.3530	0.3755
C_{max}	85%	0.6821, 1.0592	0.3771
	90%	0.7222, 1.1215	0.3993
	95%	0.7623, 1.1838	0.4215
	100%	0.8025, 1.2461	0.4437
	105%	0.8426, 1.3085	0.4659
	110%	0.8827, 1.3708	0.4880
	115%	0.9228, 1.4331	0.5102

These estimates are based on the assumption that within-participant standard deviations are 0.2424 and 0.3282 for $lnAUC_{inf}$ and lnC_{max}, respectively, as obtained from clinical studies C4671008 and C4671014 in healthy participants that used nirmatrelvir/ritonavir commercial tablets.

Participants who withdraw from the study or discontinue treatment, or whose PK samples are considered to be nonevaluable with respect to the primary PK objective may be replaced at the discretion of the investigator upon consultation with the sponsor.

10. SUPPORTING DOCUMENTATION AND OPERATIONAL CONSIDERATIONS

10.1. Appendix 1: Regulatory, Ethical, and Study Oversight Considerations

10.1.1. Regulatory and Ethical Considerations

This study will be conducted in accordance with the protocol and with the following:

- Consensus ethical principles derived from international guidelines, including the Declaration of Helsinki and CIOMS International Ethical Guidelines;
- Applicable ICH GCP guidelines;
- Applicable laws and regulations, including applicable privacy laws.

The protocol, protocol amendments, ICD, SRSD(s), and other relevant documents (eg, advertisements) must be reviewed and approved by the sponsor, submitted to an IRB/EC by the investigator, and reviewed and approved by the IRB/EC before the study is initiated.

Any amendments to the protocol will require IRB/EC approval before implementation of changes made to the study design, except for changes necessary to eliminate an immediate hazard to study participants.

Protocols and any substantial amendments to the protocol will require health authority approval prior to initiation except for changes necessary to eliminate an immediate hazard to study participants.

The investigator will be responsible for the following:

- Providing written summaries of the status of the study to the IRB/EC annually or more frequently in accordance with the requirements, policies, and procedures established by the IRB/EC;
- Notifying the IRB/EC of SAEs or other significant safety findings as required by IRB/EC procedures;
- Providing oversight of the conduct of the study at the site and adherence to requirements of 21 CFR, ICH GCP guidelines, the IRB/EC, European regulation 536/2014 for clinical studies, European Medical Device Regulation 2017/745 for clinical device research, and all other applicable local regulations.

10.1.1.1. Reporting of Safety Issues and Serious Breaches of the Protocol or ICH GCP

In the event of any prohibition or restriction imposed (ie, clinical hold) by an applicable regulatory authority in any area of the world, or if the investigator is aware of any new information that might influence the evaluation of the benefits and risks of the study intervention, Pfizer should be informed immediately.

In addition, the investigator will inform Pfizer immediately of any urgent safety measures taken by the investigator to protect the study participants against any immediate hazard, and of any serious breaches of this protocol or of the ICH GCP guidelines that the investigator becomes aware of.

10.1.2. Financial Disclosure

Not applicable.

10.1.3. Informed Consent Process

The investigator or the investigator's representative will explain the nature of the study, including the risks and benefits, to the participant and answer all questions regarding the study. The participant should be given sufficient time and opportunity to ask questions and to decide whether or not to participate in the trial.

Participants must be informed that their participation is voluntary. Participants will be required to sign a statement of informed consent that meets the requirements of 21 CFR 50, local regulations, ICH guidelines, privacy and data protection requirements, where applicable, and the IRB/EC or study center.

The investigator must ensure that each study participant is fully informed about the nature and objectives of the study, the sharing of data related to the study, and possible risks associated with participation, including the risks associated with the processing of the participant's personal data.

The participant must be informed that their personal study-related data will be used by the sponsor in accordance with local data protection law. The level of disclosure must also be explained to the participant.

The participant must be informed that their medical records may be examined by Clinical Quality Assurance auditors or other authorized personnel appointed by the sponsor, by appropriate IRB/EC members, and by inspectors from regulatory authorities.

The investigator further must ensure that each study participant is fully informed about their right to access and correct their personal data and to withdraw consent for the processing of their personal data.

The medical record must include a statement that written informed consent was obtained before the participant was enrolled in the study and the date on which the written consent was obtained. The authorized person obtaining the informed consent must also sign the ICD.

Participants must be reconsented to the most current version of the IRB/EC-approved ICD(s) during their participation in the study as required per local regulations.

A copy of the ICD(s) must be provided to the participant.

A participant who is rescreened is not required to sign another ICD if the rescreening occurs within 10 days from the previous ICD signature date.

10.1.4. Data Protection

All parties will comply with all applicable laws, including laws regarding the implementation of organizational and technical measures to ensure protection of participant data.

Participants' personal data will be stored at the study site in encrypted electronic and/or paper form and will be password protected or secured in a locked room to ensure that only authorized study staff have access. The study site will implement appropriate technical and organizational measures to ensure that the personal data can be recovered in the event of disaster. In the event of a potential personal data breach, the study site will be responsible for determining whether a personal data breach has in fact occurred and, if so, providing breach notifications as required by law.

To protect the rights and freedoms of participants with regard to the processing of personal data, participants will be assigned a single, participant-specific numerical code. Any participant records or data sets that are transferred to the sponsor will contain the numerical code; participant names will not be transferred. All other identifiable data transferred to the sponsor will be identified by this single, participant-specific code. The study site will maintain a confidential list of participants who participated in the study, linking each participant's numerical code to their actual identity and medical record ID. In case of data transfer, the sponsor will protect the confidentiality of participants' personal data consistent with the clinical study agreement and applicable privacy laws.

Information technology systems used to collect, process, and store study-related data are secured by technical and organizational security measures designed to protect such data against accidental or unlawful loss, alteration, or unauthorized disclosure or access.

The sponsor maintains standard operating procedures on how to respond in the event of unauthorized access, use, or disclosure of sponsor information or systems.

10.1.5. Committees Structure

10.1.5.1. Data Monitoring Committee

This study will not use an E-DMC.

10.1.6. Dissemination of Clinical Study Data

Pfizer fulfills its commitment to publicly disclose clinical study results through posting the results of studies on www.clinicaltrials.gov (ClinicalTrials.gov), the EudraCT/CTIS, and/or www.pfizer.com, and other public registries and websites in accordance with applicable local laws/regulations. In addition, Pfizer reports study results outside of the requirements of local laws/regulations pursuant to its SOPs.

In all cases, study results are reported by Pfizer in an objective, accurate, balanced, and complete manner and are reported regardless of the outcome of the study or the country in which the study was conducted.

www.clinicaltrials.gov

Pfizer posts clinical trial results on www.clinicaltrials.gov for Pfizer-sponsored interventional studies (conducted in patients) that evaluate the safety and/or efficacy of a product, regardless of the geographical location in which the study is conducted. These results are submitted for posting in accordance with the format and timelines set forth by US law.

EudraCT/CTIS

Pfizer posts clinical trial results on EudraCT/CTIS for Pfizer-sponsored interventional studies in accordance with the format and timelines set forth by EU requirements.

www.pfizer.com

Pfizer posts CSR synopses and plain-language study results summaries on www.pfizer.com for Pfizer-sponsored interventional studies at the same time the corresponding study results are posted to www.clinicaltrials.gov CSR synopses will have personally identifiable information anonymized.

Documents within marketing applications

Pfizer complies with applicable local laws/regulations to publish clinical documents included in marketing applications. Clinical documents include summary documents and CSRs including the protocol and protocol amendments, sample CRFs, and SAPs. Clinical documents will have personally identifiable information anonymized.

Data sharing

Pfizer provides researchers secure access to participant-level data or full CSRs for the purposes of "bona-fide scientific research" that contributes to the scientific understanding of the disease, target, or compound class. Pfizer will make data from these trials available 24 months after study completion. Participant-level data will be anonymized in accordance with applicable privacy laws and regulations. CSRs will have personally identifiable information anonymized.

Data requests are considered from qualified researchers with the appropriate competencies to perform the proposed analyses. Research teams must include a biostatistician. Data will not be provided to applicants with significant conflicts of interest, including individuals requesting access for commercial/competitive or legal purposes.

10.1.7. Data Quality Assurance

All participant data relating to the study will be recorded on printed or electronic CRF unless transmitted to the sponsor or designee electronically (eg, laboratory data). The investigator is responsible for verifying that data entries are accurate and correct by physically or electronically signing the CRF.

Guidance on completion of CRFs will be provided in the CRF Completion Requirements document.

The investigator must ensure that the CRFs are securely stored at the study site in encrypted electronic and/or paper form and are password-protected or secured in a locked room to prevent access by unauthorized third parties.

QTLs are predefined parameters that are monitored during the study. Important deviations from the QTLs and any remedial actions taken will be summarized in the CSR.

The investigator must permit study-related monitoring, audits, IRB/EC review, and regulatory agency inspections and provide direct access to source data documents. This verification may also occur after study completion. It is important that the investigator(s) and their relevant personnel are available during the monitoring visits and possible audits or inspections and that sufficient time is devoted to the process.

Monitoring details describing strategy, including definition of study-critical data items and processes (eg, risk-based initiatives in operations and quality, such as risk management and mitigation strategies and analytical risk-based monitoring), methods, responsibilities, and requirements, including handling of noncompliance issues and monitoring techniques (central, virtual, or on-site monitoring), are provided in the data management plan [IQMP] maintained and utilized by the sponsor or designee.

The sponsor or designee is responsible for the data management of this study, including quality checking of the data.

Records and documents, including signed ICDs, pertaining to the conduct of this study must be retained by the investigator for 15 years after study completion unless local regulations or institutional policies require a longer retention period. No records may be destroyed during the retention period without the written approval of the sponsor. No records may be transferred to another location or party without written notification to the sponsor. The investigator must ensure that the records continue to be stored securely for as long as they are maintained.

When participant data are to be deleted, the investigator will ensure that all copies of such data are promptly and irrevocably deleted from all systems.

The investigator(s) will notify the sponsor or its agents immediately of any regulatory inspection notification in relation to the study. Furthermore, the investigator will cooperate with the sponsor or its agents to prepare the investigator site for the inspection and will allow

the sponsor or its agent, whenever feasible, to be present during the inspection. The investigator site and investigator will promptly resolve any discrepancies that are identified between the study data and the participant's medical records. The investigator will promptly provide copies of the inspection findings to the sponsor or its agent. Before response submission to the regulatory authorities, the investigator will provide the sponsor or its agents with an opportunity to review and comment on responses to any such findings.

10.1.8. Source Documents

Source documents provide evidence for the existence of the participant and substantiate the integrity of the data collected. Source documents are filed at the investigator site.

Data reported on the CRF or entered in the eCRF that are from source documents must be consistent with the source documents or the discrepancies must be explained. The investigator may need to request previous medical records or transfer records, depending on the study. Also, current medical records must be available.

Definition of what constitutes source data and its origin can be found in the Source Document Locator, which is maintained by the sponsor’s designee (Pfizer CRU).

Description of the use of the computerized system is documented in the Data Management Plan, which is maintained by the sponsor’s designee (Pfizer Clinical Research Unit).

The investigator must maintain accurate documentation (source data) that supports the information entered in the CRF.

The sponsor or designee will perform monitoring to confirm that data entered into the CRF by authorized site personnel are accurate, complete, and verifiable from source documents; that the safety and rights of participants are being protected; and that the study is being conducted in accordance with the currently approved protocol and any other study agreements, ICH GCP guidelines, and all applicable regulatory requirements.

10.1.9. Study and Site Start and Closure

The study start date is the date on which the clinical study will be open for recruitment of participants.

The first act of recruitment is the date of the first participant’s first visit and will be the study start date.

The sponsor designee reserves the right to close the study site or terminate the study at any time for any reason at the sole discretion of the sponsor, including (but not limited to) regulatory authority decision, change in opinion of the IRB/EC, or change in benefit-risk assessment Study sites will be closed upon study completion. A study site is considered closed when all required documents and study supplies have been collected and a study-site closure visit has been performed.

The investigator may initiate study-site closure at any time upon notification to the sponsor if requested to do so by the responsible IRB/EC or if such termination is required to protect the health of study participants.

Reasons for the early closure of a study site by the sponsor may include but are not limited to:

- Failure of the investigator to comply with the protocol, the requirements of the IRB/EC or local health authorities, the sponsor's procedures, or the ICH GCP guidelines;
- Inadequate recruitment of participants by the investigator;
- Discontinuation of further study intervention development.

If the study is prematurely terminated or suspended, the sponsor shall promptly inform the investigators, the ECs/IRBs, the regulatory authorities, and any CRO(s) used in the study of the reason for termination or suspension, as specified by the applicable regulatory requirements. The investigator shall promptly inform the participant and should assure appropriate participant therapy and/or follow-up.

Study termination is also provided for in the clinical study agreement. If there is any conflict between the contract and this protocol, the contract will control as to termination rights.

10.1.10. Publication Policy

For multicenter trials, the primary publication will be a joint publication developed by the investigator and Pfizer reporting the primary endpoint(s) of the study covering all study sites. The investigator agrees to refer to the primary publication in any subsequent publications. Pfizer will not provide any financial compensation for the investigator’s participation in the preparation of the primary congress abstract, poster, presentation, or primary manuscript for the study.

Investigators are free to publish individual center results that they deem to be clinically meaningful after publication of the overall results of the study or 12 months after primary completion date or study completion at all sites, whichever occurs first, subject to the other requirements described in this section.

The investigator will provide Pfizer an opportunity to review any proposed publication or any other type of disclosure of the study results (collectively, “publication”) before it is submitted or otherwise disclosed and will submit all publications to Pfizer 30 days before submission. If any patent action is required to protect intellectual property rights, the investigator agrees to delay the disclosure for a period not to exceed an additional 60 days upon request from Pfizer. This allows Pfizer to protect proprietary information and to provide comments, and the investigator will, on request, remove any previously undisclosed confidential information before disclosure, except for any study-intervention or

Pfizer-related information necessary for the appropriate scientific presentation or understanding of the study results. For joint publications, should there be disagreement regarding interpretation and/or presentation of specific analysis results, resolution of, and responsibility for, such disagreements will be the collective responsibility of all authors of the publication.

For all publications relating to the study, the investigator and Pfizer will comply with recognized ethical standards concerning publications and authorship, including those established by the International Committee of Medical Journal Editors. The investigator will disclose any relationship with Pfizer and any relevant potential conflicts of interest, including any financial or personal relationship with Pfizer, in any publications. All authors will have access to the relevant statistical tables, figures, and reports (in their original format) required to develop the publication.

10.1.11. Sponsor's Medically Qualified Individual

The contact information for the sponsor's MQI for the study is documented in the study contact list located in CTMS.

To facilitate access to their investigator and the sponsor's MQI for study-related medical questions or problems from nonstudy healthcare professionals, participants are provided with an ECC at the time of informed consent. The ECC contains, at a minimum, (a) protocol and study intervention identifiers, (b) participant's study identification number, (c) site emergency phone number active 24 hours/day, 7 days per week.

The ECC is intended to augment, not replace, the established communication pathways between the participant and their investigator and site staff, and between the investigator and sponsor study team. The ECC is only to be used by healthcare professionals not involved in the research study, as a means of reaching the investigator or site staff related to the care of a participant.

10.2. Appendix 2: Clinical Laboratory Tests

The following safety laboratory tests will be performed at times defined in the SoA section of this protocol. Additional laboratory results may be reported on these samples as a result of the method of analysis or the type of analyzer used by the clinical laboratory, or as derived from calculated values. These additional tests would not require additional collection of blood. Unscheduled clinical laboratory measurements may be obtained at any time during the study to assess any perceived safety issues.

Table 3. Protocol-Required Safety Laboratory Assessments

Hematology	Chemistry	Urinalysis	Other
Hemoglobin Hematocrit RBC count MCV MCH MCHC Platelet count WBC count Total neutrophils (Abs) Eosinophils (Abs) Monocytes (Abs) Basophils (Abs) Lymphocytes (Abs)	BUN and creatinine Glucose (fasted) Calcium Sodium Potassium Chloride Total CO_2 (bicarbonate) AST, ALT Total bilirubin Alkaline phosphatase Uric acid Albumin Total protein	Local Dipstick: pH Glucose (qual) Protein (qual) Blood (qual) Ketones Nitrites Leukocyte esterase Laboratory: Microscopy and Culture[a]	• SARS-CoV-2 RT-PCR • Urine drug screening[b] • Pregnancy test (β-hCG)[c] • eGFR [CKD-EPI] • aPTT • PT-INR • Fibrinogen At Screening only: • FSH[d] • HBsAb[e] • HBsAg • HBcAb • HCVAb • HIV

a. Only if urine dipstick is positive for blood, protein, nitrites, or leukocyte esterase and culture only if bacteriuria.
b. The minimum requirement for drug screening includes cocaine, THC, opiates/opioids, benzodiazepines, and amphetamines (others are site and study specific).
c. Serum or urine β-hCG for female participants of childbearing potential.
d. For confirmation of postmenopausal status only.
e. HBsAb will be tested if HBsAg and/or HBcAb are positive.

The investigator must review the laboratory report, document this review, and record any clinically relevant changes occurring during the study in the AE section of the CRF.

Any remaining serum/plasma from samples collected for clinical safety laboratory measurements at baseline and at all times after dose administration may be retained and stored for the duration of the study. CCI [redacted]

10.3. Appendix 3: Adverse Events: Definitions and Procedures for Recording, Evaluating, Follow-Up, and Reporting

10.3.1. Definition of AE

AE Definition
• An AE is any untoward medical occurrence in a patient or clinical study participant, temporally associated with the use of study intervention, whether or not considered related to the study intervention. • Note: An AE can therefore be any unfavorable and unintended sign (including an abnormal laboratory finding), symptom, or disease (new or exacerbated) temporally associated with the use of study intervention.

Events <u>Meeting</u> the AE Definition

• Any abnormal laboratory test results (hematology, clinical chemistry, or urinalysis) or other safety assessments (eg, ECG, radiological scans, vital sign measurements), including those that worsen from baseline, considered clinically significant in the medical and scientific judgment of the investigator. Any abnormal laboratory test results that meet any of the conditions below must be recorded as an AE:
 	
  • Is associated with accompanying symptoms;
 	
  • Requires additional diagnostic testing or medical/surgical intervention;
 	
  • Leads to a change in study dosing (outside of any protocol-specified dose adjustments) or discontinuation from the study, significant additional concomitant drug treatment, or other therapy.
 	
• Exacerbation of a chronic or intermittent preexisting condition, including either an increase in either frequency and/or intensity of the condition.
 	
• New condition detected or diagnosed after study intervention administration, even though it may have been present before the start of the study.
 	
• Signs, symptoms, or the clinical sequelae of a suspected drug-drug interaction.
 	
• Signs, symptoms, or the clinical sequelae of a suspected overdose of either study intervention or a concomitant medication. Overdose per se will not be reported as an AE or SAE unless it is an intentional overdose taken with possible suicidal/self-harming intent. Such overdoses should be reported regardless of sequelae.

Events NOT Meeting the AE Definition
• Any clinically significant abnormal laboratory findings or other abnormal safety assessments that are associated with the underlying disease, unless judged by the investigator to be more severe than expected for the participant's condition. • The disease/disorder being studied or expected progression, signs, or symptoms of the disease/disorder being studied, unless more severe than expected for the participant's condition. • Medical or surgical procedure (eg, endoscopy, appendectomy): the condition that leads to the procedure is the AE. • Situations in which an untoward medical occurrence did not occur (social and/or convenience admission to a hospital). • Anticipated day-to-day fluctuations of preexisting disease(s) or condition(s) present or detected at the start of the study that do not worsen.

10.3.2. Definition of an SAE

An SAE is defined as any untoward medical occurrence that, at any dose, meets one or more of the criteria listed below:
a. Results in death
b. Is life-threatening The term "life-threatening" in the definition of "serious" refers to an event in which the participant was at risk of death at the time of the event. It does not refer to an event that hypothetically might have caused death if it were more severe.
c. Requires inpatient hospitalization or prolongation of existing hospitalization In general, hospitalization signifies that the participant has been admitted (usually involving at least an overnight stay) at the hospital or emergency ward for observation and/or treatment that would not have been appropriate in the physician's office or outpatient setting. Complications that occur during hospitalization are AEs. If a complication prolongs hospitalization or fulfills any other serious criteria, the event is serious. When in doubt as to whether "hospitalization" occurred or was necessary, the AE should be considered serious. Hospitalization for elective treatment of a preexisting condition that did not worsen from baseline is not considered an AE.

d. Results in persistent or significant disability/incapacity

- The term disability means a substantial disruption of a person's ability to conduct normal life functions.
- This definition is not intended to include experiences of relatively minor medical significance, such as uncomplicated headache, nausea, vomiting, diarrhea, influenza, and accidental trauma (eg, sprained ankle), that may interfere with or prevent everyday life functions but do not constitute a substantial disruption.

e. Is a congenital anomaly/birth defect

f. Is a suspected transmission via a Pfizer product of an infectious agent, pathogenic or non-pathogenic

The event may be suspected from clinical symptoms or laboratory findings indicating an infection in a participant exposed to a Pfizer product. The terms "suspected transmission" and "transmission" are considered synonymous. These cases are considered unexpected and handled as serious expedited cases by pharmacovigilance personnel. Such cases are also considered for reporting as product defects, if appropriate.

g. Other situations:

- Medical or scientific judgment should be exercised by the investigator in deciding whether SAE reporting is appropriate in other situations, such as significant medical events that may jeopardize the participant or may require medical or surgical intervention to prevent one of the other outcomes listed in the above definition. These events should usually be considered serious.
- Examples of such events include invasive or malignant cancers, intensive treatment in an emergency room or at home for allergic bronchospasm, blood dyscrasias or convulsions that do not result in hospitalization, or development of drug dependency or drug abuse.

10.3.3. Recording/Reporting and Follow-Up of AEs and/or SAEs During the Active Collection Period

AE and SAE Recording/Reporting

The table below summarizes the requirements for recording AEs on the CRF and for reporting SAEs on the CT SAE Report Form to Pfizer Safety throughout the active collection period. These requirements are delineated for 3 types of events: (1) SAEs; (2) nonserious AEs; and (3) exposure to the study intervention under study during pregnancy or breastfeeding, and occupational exposure.

It should be noted that the CT SAE Report Form for reporting of SAE information is not the same as the AE page of the CRF. When the same data are collected, the forms must be completed in a consistent manner. AEs should be recorded using concise medical terminology and the same AE term should be used on both the CRF and the CT SAE Report Form for reporting of SAE information.

Safety Event	**Recorded on the CRF**	**Reported on the CT SAE Report Form to Pfizer Safety Within 24 Hours of Awareness**
SAE	All	All
Nonserious AE	All	None
Exposure to the study intervention under study during pregnancy or breastfeeding	All AEs/SAEs associated with EDP or EDB **Note:** Instances of EDP or EDB not associated with an AE or SAE are not captured in the CRF.	All instances of EDP are reported (whether or not there is an associated SAE)* All instances of EDB are reported (whether or not there is an associated SAE). **
Environmental or occupational exposure to the product under study to a non-participant (not involving EDP or EDB).	None. Exposure to a study non-participant is not collected on the CRF.	The exposure (whether or not there is an associated AE or SAE) must be reported.***

* **EDP** (with or without an associated AE or SAE): any pregnancy information is reported to Pfizer Safety using the CT SAE Report Form and EDP Supplemental Form; if the EDP is associated with an SAE, then the SAE is reported to Pfizer Safety using the CT SAE Report Form.

** **EDB** is reported to Pfizer Safety using the CT SAE Report Form, which would also include details of any SAE that might be associated with the EDB.

*** **Environmental or occupational exposure:** AEs or SAEs associated with occupational exposure are reported to Pfizer Safety using the CT SAE Report Form.

- When an AE or SAE occurs, it is the responsibility of the investigator to review all documentation (eg, hospital progress notes, laboratory reports, and diagnostic reports) related to the event.
- The investigator will then record all relevant AE or SAE information in the CRF.

- It is **not** acceptable for the investigator to send photocopies of the participant's medical records to Pfizer Safety in lieu of completion of the CT SAE Report Form/AE or SAE CRF page.

- There may be instances when copies of medical records for certain cases are requested by Pfizer Safety. In this case, all participant identifiers, with the exception of the participant number, will be redacted on the copies of the medical records before submission to Pfizer Safety.

- The investigator will attempt to establish a diagnosis of the event based on signs, symptoms, and/or other clinical information. Whenever possible, the diagnosis (not the individual signs/symptoms) will be documented as the AE or SAE.

Assessment of Intensity

The investigator will make an assessment of intensity for each AE and SAE reported during the study and assign it to 1 of the following categories:

- Mild: A type of AE that is usually transient and may require only minimal treatment or therapeutic intervention. The event does not generally interfere with usual ADL.

- Moderate: A type of AE that is usually alleviated with additional specific therapeutic intervention. The event interferes with usual ADL, causing discomfort, but poses no significant or permanent risk of harm to the research participant.

- Severe: A type of AE that interrupts usual ADL, or significantly affects clinical status, or may require intensive therapeutic intervention.

An event is defined as "serious" when it meets at least 1 of the predefined outcomes as described in the definition of an SAE, NOT when it is rated as severe.

Assessment of Causality

- The investigator is obligated to assess the relationship between study intervention and each occurrence of each AE or SAE. The investigator will use clinical judgment to determine the relationship.

- A "reasonable possibility" of a relationship conveys that there are facts, evidence, and/or arguments to suggest a causal relationship, rather than a relationship cannot be ruled out.

- Alternative causes, such as underlying disease(s), concomitant therapy, and other risk factors, as well as the temporal relationship of the event to study intervention administration, will be considered and investigated.
- The investigator will also consult the IB and/or product information, for marketed products, in their assessment.
- For each AE or SAE, the investigator **must** document in the medical notes that they have reviewed the AE or SAE and have provided an assessment of causality.
- There may be situations in which an SAE has occurred and the investigator has minimal information to include in the initial report to the sponsor. However, **it is very important that the investigator always make an assessment of causality for every event before the initial transmission of the SAE data to the sponsor.**
- The investigator may change their opinion of causality in light of follow-up information and send an SAE follow-up report with the updated causality assessment.
- The causality assessment is one of the criteria used when determining regulatory reporting requirements.
- If the investigator does not know whether or not the study intervention caused the event, then the event will be handled as "related to study intervention" for reporting purposes, as defined by the sponsor. In addition, if the investigator determines that an SAE is associated with study procedures, the investigator must record this causal relationship in the source documents and CRF, and report such an assessment in the dedicated section of the CT SAE Report Form and in accordance with the SAE reporting requirements.

Follow-Up of AEs and SAEs

- The investigator is obligated to perform or arrange for the conduct of supplemental measurements and/or evaluations, as medically indicated or as requested by the sponsor, to elucidate the nature and/or causality of the AE or SAE as fully as possible. This may include additional laboratory tests or investigations, histopathological examinations, or consultation with other healthcare providers.
- If a participant dies during participation in the study or during a recognized follow-up period, the investigator will provide Pfizer Safety with a copy of any postmortem findings, including histopathology.

- New or updated information will be recorded in the originally submitted documents.
- The investigator will submit any updated SAE data to the sponsor within 24 hours of receipt of the information.

10.3.4. Reporting of SAEs

SAE Reporting to Pfizer Safety via an Electronic DCT

- The primary mechanism for reporting an SAE to Pfizer Safety will be the electronic DCT.
- If the electronic system is unavailable, then the site will use the paper SAE DCT (see next section) to report the event within 24 hours.
- The site will enter the SAE data into the electronic DCT (eg, eSAE or PSSA) or paper form (as applicable) as soon as the data become available.
- After the study is completed at a given site, the electronic data collection tool will be taken off-line to prevent the entry of new data or changes to existing data.
- If a site receives a report of a new SAE from a study participant or receives updated data on a previously reported SAE after the electronic DCT has been taken off-line, then the site can report this information on a paper SAE form (see next section) or to Pfizer Safety by telephone.

SAE Reporting to Pfizer Safety via the CT SAE Report Form

- Facsimile transmission of the CT SAE Report Form is the preferred method to transmit this information to Pfizer Safety.
- In circumstances when the facsimile is not working, an alternative method should be used, eg, secured (Transport Layer Security) or password-protected email. If none of these methods can be used, notification by telephone is acceptable with a copy of the CT SAE Report Form sent by overnight mail or courier service.
- Initial notification via telephone does not replace the need for the investigator to complete and sign the CT SAE Report Form pages within the designated reporting time frames.

10.4. Appendix 4: Contraceptive and Barrier Guidance

10.4.1. Male Participant Reproductive Inclusion Criteria

No contraception methods are required for male participants in this study, as the calculated safety margin is ≥100-fold between the estimated maternal exposure due to seminal transfer and the NOAEL for serious manifestations of developmental toxicity in nonclinical studies.

10.4.2. Female Participant Reproductive Inclusion Criteria

The criteria below are part of Inclusion Criterion 1 (Age and Sex; Section 5.1) and specify the reproductive requirements for including female participants. Refer to Section 10.4.4 for a complete list of contraceptive methods permitted in the study.

A female participant is eligible to participate if she is not pregnant or breastfeeding, and at least 1 of the following conditions applies:

- Is not a WOCBP (see definitions below in Section 10.4.3).

OR

- Is a WOCBP and agrees to use a highly effective contraceptive method (failure rate of <1% per year) during the intervention period and for at least 28 days after the last dose of study intervention, which corresponds to the time needed to eliminate any reproductive safety risk of the study intervention(s). If a highly effective, user-dependent method is chosen, she agrees to concurrently use an effective barrier method of contraception. The investigator should evaluate the effectiveness of the contraceptive method in relationship to the first dose of study intervention.

The investigator is responsible for review of medical history, menstrual history, and recent sexual activity to decrease the risk for inclusion of a woman with an early undetected pregnancy.

10.4.3. Woman of Childbearing Potential

A woman is considered fertile following menarche and until becoming postmenopausal unless permanently sterile (see below).

If fertility is unclear (eg, amenorrhea in adolescents or athletes) and a menstrual cycle cannot be confirmed before the first dose of study intervention, additional evaluation should be considered.

Women in the following categories are not considered WOCBP:

1. Premenopausal female with 1 of the following:

    - Documented hysterectomy;

- Documented bilateral salpingectomy;
- Documented bilateral oophorectomy.

For individuals with permanent infertility due to an alternate medical cause other than the above, (eg, mullerian agenesis, androgen insensitivity), investigator discretion should be applied to determining study entry.

Note: Documentation for any of the above categories can come from the site personnel's review of the participant's medical records, medical examination, or medical history interview. The method of documentation should be recorded in the participant's medical record for the study.

2. Postmenopausal female.
    - A postmenopausal state is defined as no menses for 12 months without an alternative medical cause. In addition:
        - A high FSH level in the postmenopausal range must be used to confirm a postmenopausal state in women under 60 years old and not using hormonal contraception or HRT.
        - A female on HRT and whose menopausal status is in doubt will be required to use one of the highly effective nonestrogen hormonal highly effective contraception methods if she wishes to continue her HRT during the study. Otherwise, she must discontinue HRT to allow confirmation of postmenopausal status before study enrollment.

10.4.4. Contraception Methods

Contraceptive use by men or women should be consistent with local availability/regulations regarding the use of contraceptive methods for those participating in clinical trials.

The following contraceptive methods are appropriate for this study:

<u>Highly Effective Methods That Have Low User Dependency</u>

1. Implantable progestogen-only hormone contraception associated with inhibition of ovulation.
2. Intrauterine device.
3. Intrauterine hormone-releasing system.
4. Bilateral tubal occlusion.

5. Vasectomized partner.

    - Vasectomized partner is a highly effective contraceptive method provided that the partner is the sole sexual partner of the WOCBP and the absence of sperm has been confirmed. If not, an additional highly effective method of contraception should be used. The spermatogenesis cycle is approximately 90 days.

Highly Effective Methods That Are User Dependent

6. Combined (estrogen- and progestogen-containing) hormonal contraception associated with inhibition of ovulation.

    - Oral + barrier
    - Intravaginal + barrier*
    - Transdermal + barrier*

7. Progestogen-only hormone contraception associated with inhibition of ovulation.

    - Oral + barrier*
    - Injectable + barrier*

Sexual Abstinence

8. Sexual abstinence is considered a highly effective method only if defined as refraining from heterosexual intercourse during the entire period of risk associated with the study intervention. The reliability of sexual abstinence needs to be evaluated in relation to the duration of the study and the preferred and usual lifestyle of the participant.

* Acceptable barrier methods to be used concomitantly with options 6 or 7 for the study include any of the following:

- Male or female condom, with or without spermicide;
- Cervical cap, diaphragm or sponge with spermicide;
- A combination of male condom with either cervical cap, diaphragm or sponge with spermicide (double-barrier methods).

Because ritonavir may reduce the effect of estradiol-containing contraceptives when agents are co-administered, a barrier method or other nonhormonal method of contraception must also be used if the participant is using estradiol-containing contraceptives.

10.5. Appendix 5: Genetics

Use/Analysis of DNA

- Genetic variation may impact a participant's response to study intervention, susceptibility to, and severity and progression of disease. Therefore, where local regulations and IRBs/ECs allow, a blood sample will be collected for DNA analysis.

- The scope of the genetic research may be narrow (eg, 1 or more candidate genes) or broad (eg, the entire genome), as appropriate to the scientific question under investigation.

- The samples may be analyzed as part of a multistudy assessment of genetic factors involved in the response to study intervention or study interventions of this class to understand treatments for the disease(s) under study or the disease(s) themselves.

- The results of genetic analyses may be reported in the CSR or in a separate study summary, or may be used for internal decision making without being included in a study report.

- The sponsor will store the DNA samples in a secure storage space with adequate measures to protect confidentiality.

- The samples will be retained as indicated:

- Retained samples will be stored indefinitely or for another period as per local requirements.

- Participants may withdraw their consent for the storage and/or use of their Retained Research Samples at any time by making a request to the investigator; in this case, any remaining material will be destroyed. Data already generated from the samples will be retained to protect the integrity of existing analyses.

- Samples for genetic research will be labeled with a code. The key between the code and the participant's personally identifying information (eg, name, address) will be held securely at the study site.

10.6. Appendix 6: Liver Safety: Suggested Actions and Follow-Up Assessments

Potential Cases of Drug-Induced Liver Injury

Humans exposed to a drug who show no sign of liver injury (as determined by elevations in transaminases) are termed "tolerators," while those who show transient liver injury but adapt are termed "adaptors." In some participants, transaminase elevations are a harbinger of a more serious potential outcome. These participants fail to adapt and therefore are "susceptible" to progressive and serious liver injury, commonly referred to as DILI. Participants who experience a transaminase elevation above 3 × ULN should be monitored more frequently to determine if they are "adaptors" or are "susceptible."

In the majority of DILI cases, elevations in AST and/or ALT may precede T bili elevations (>2 × ULN) by several days or weeks. The increase in T bili typically occurs while AST/ALT is/are still elevated above 3 × ULN (ie, AST/ALT and T bili values will be elevated within the same laboratory sample). In rare instances, by the time T bili elevations are detected, AST/ALT values might have decreased. This occurrence is still regarded as a potential DILI. Therefore, abnormal elevations in either AST OR ALT in addition to T bili that meet the criteria outlined below are considered potential DILI (assessed per Hy's law criteria) cases and should always be considered important medical events, even before all other possible causes of liver injury have been excluded.

The threshold of laboratory abnormalities for a potential DILI case depends on the participant's individual baseline values and underlying conditions. Participants who present with the following laboratory abnormalities should be evaluated further as potential DILI (Hy's law) cases to definitively determine the etiology of the abnormal laboratory values:

- Participants with AST/ALT and T bili baseline values within the normal range who subsequently present with AST OR ALT values ≥3 × ULN AND a T bili value ≥2 × ULN with no evidence of hemolysis and an alkaline phosphatase value <2 × ULN or not available.

- For participants with baseline AST **OR** ALT **OR** T bili values above the ULN, the following threshold values are used in the definition mentioned above, as needed, depending on which values are above the ULN at baseline:

    - Preexisting AST or ALT baseline values above the normal range: AST or ALT values ≥2 times the baseline values AND ≥3 × ULN; or ≥8 × ULN (whichever is smaller).

    - Preexisting values of T bili above the normal range: T bili level increased from baseline value by an amount of ≥1 × ULN **or** if the value reaches ≥3 × ULN (whichever is smaller).

Rises in AST/ALT and T bili separated by more than a few weeks should be assessed individually based on clinical judgment; any case where uncertainty remains as to whether it represents a potential Hy's law case should be reviewed with the sponsor.

The participant should return to the investigator site and be evaluated as soon as possible, preferably within 48 hours from awareness of the abnormal results. This evaluation should include laboratory tests, detailed history, and physical assessment.

In addition to repeating measurements of AST and ALT and T bili for suspected Hy's law cases, additional laboratory tests should include albumin, CK, direct and indirect bilirubin, GGT, PT/INR, total bile acids, and alkaline phosphatase. Consideration should also be given to drawing a separate tube of clotted blood and an anticoagulated tube of blood for further testing, as needed, for further contemporaneous analyses at the time of the recognized initial abnormalities to determine etiology. A detailed history, including relevant information, such as review of ethanol, acetaminophen/paracetamol (either by itself or as a coformulated product in prescription or over-the-counter medications), recreational drug, or supplement (herbal) use and consumption, family history, sexual history, travel history, history of contact with a jaundiced person, surgery, blood transfusion, history of liver or allergic disease, and potential occupational exposure to chemicals, should be collected. Further testing for acute hepatitis A, B, C, D, and E infection, liver imaging (eg, biliary tract), and collection of serum samples for acetaminophen/paracetamol drug and/or protein adduct levels may be warranted.

All cases demonstrated on repeat testing as meeting the laboratory criteria of AST/ALT and T bili elevation defined above should be considered potential DILI (Hy's law) cases if no other reason for the LFT abnormalities has yet been found. **Such potential DILI (Hy's law) cases are to be reported as SAEs, irrespective of availability of all the results of the investigations performed to determine etiology of the LFT abnormalities.**

A potential DILI (Hy's law) case becomes a confirmed case only after all results of reasonable investigations have been received and have excluded an alternative etiology.

10.7. Appendix 7: Kidney Safety: Monitoring Guidelines

10.7.1. Laboratory Assessment of Change in Kidney Function and Detection of Kidney Injury

Standard kidney safety monitoring requires assessment of baseline and postbaseline serum creatinine (Scr measurement to estimate glomerular filtration rate [Scr-based eGFR] or creatinine clearance [eCrCl]). Baseline and postbaseline serum Scys makes it feasible to distinguish AKI from other causes of Scr increase. If Scr increase is confirmed after baseline, then reflex measurement of Scys is indicated to estimate the combined Scr-Scys eGFR calculation (for adults only).

Regardless of whether kidney function monitoring tests are required as a routine safety monitoring procedure in the study, if the investigator or sponsor deems it necessary to further assess kidney safety and quantify kidney function, then these test results should be managed and followed per standard of care.

10.7.2. Age-Specific Kidney Function Calculation Recommendations

10.7.2.1. Adults (18 Years and Above)—2021 CKD-EPI Equations[3]

2021 CKD-EPI Scr Only	**Scr** *(mg/dL)*	**Scys** *(mg/L)*	**Recommended eGFR Equation**
Female	if ≤ 0.7	NA	$eGFR = 143 \times (Scr/0.7)^{-0.241} \times (0.9938)^{Age}$
Female	if > 0.7	NA	$eGFR = 143 \times (Scr/0.7)^{-1.200} \times (0.9938)^{Age}$
Male	if ≤ 0.9	NA	$eGFR = 142 \times (Scr/0.9)^{-0.302} \times (0.9938)^{Age}$
Male	if > 0.9	NA	$eGFR = 142 \times (Scr/0.9)^{-1.200} \times (0.9938)^{Age}$
2021 CKD-EPI Scr-Scys Combined	**Scr** *(mg/dL)*	**Scys** *(mg/L)*	**Recommended eGFR Equation**
Female	if ≤ 0.7	if ≤ 0.8	$eGFR = 130 \times (Scr/0.7)^{-0.219} \times (Scys/0.8)^{-0.323} \times (0.9961)^{Age}$
Female	if ≤ 0.7	if > 0.8	$eGFR = 130 \times (Scr/0.7)^{-0.219} \times (Scys/0.8)^{-0.778} \times (0.9961)^{Age}$
Female	if > 0.7	if ≤ 0.8	$eGFR = 130 \times (Scr/0.7)^{-0.544} \times (Scys/0.8)^{-0.323} \times (0.9961)^{Age}$
Female	if > 0.7	if > 0.8	$eGFR = 130 \times (Scr/0.7)^{-0.544} \times (Scys/0.8)^{-0.778} \times (0.9961)^{Age}$
Male	if ≤ 0.9	if ≤ 0.8	$eGFR = 135 \times (Scr/0.9)^{-0.144} \times (Scys/0.8)^{-0.323} \times (0.9961)^{Age}$
Male	if ≤ 0.9	if > 0.8	$eGFR = 135 \times (Scr/0.9)^{-0.144} \times (Scys/0.8)^{-0.778} \times (0.9961)^{Age}$
Male	if > 0.9	if ≤ 0.8	$eGFR = 135 \times (Scr/0.9)^{-0.544} \times (Scys/0.8)^{-0.323} \times (0.9961)^{Age}$
Male	if > 0.9	if > 0.8	$eGFR = 135 \times (Scr/0.9)^{-0.544} \times (Scys/0.8)^{-0.778} \times (0.9961)^{Age}$

10.7.3. Adverse Event Grading for Kidney Safety Laboratory Abnormalities

AE grading for decline in kidney function (ie, eGFR or eCrCl) will be according to KDIGO criteria.

10.8. Appendix 8: ECG Findings of Potential Clinical Concern

ECG Findings That <u>May</u> Qualify as AEs

- Marked sinus bradycardia (rate <40 bpm) lasting minutes.
- New PR interval prolongation >280 msec.
- New prolongation of QTcF to >480 msec (absolute) or by ≥60 msec from baseline.
- New-onset atrial flutter or fibrillation, with controlled ventricular response rate: ie, rate <120 bpm.
- New-onset type I second-degree (Wenckebach) AV block of >30 seconds' duration.
- Frequent PVCs, triplets, or short intervals (<30 seconds) of consecutive ventricular complexes.

ECG Findings That <u>May</u> Qualify as SAEs

- QTcF prolongation >500 msec.
- New ST-T changes suggestive of myocardial ischemia.
- New-onset LBBB block (QRS complex>120 msec).
- New-onset right bundle branch block (QRS complex>120 msec).
- Symptomatic bradycardia.
- Asystole:
  - In awake, symptom-free participants in sinus rhythm, with documented periods of asystole ≥3.0 seconds or any escape rate <40 bpm, or with an escape rhythm that is below the AV node.
  - In awake, symptom-free participants with atrial fibrillation and bradycardia with 1 or more pauses of at least 5 seconds or longer.
  - Atrial flutter or fibrillation, with rapid ventricular response rate: rapid = rate >120 bpm.
- Sustained supraventricular tachycardia (rate >120 bpm) ("sustained" = short duration with relevant symptoms or lasting >1 minute).

- Ventricular rhythms >30 seconds' duration, including idioventricular rhythm (HR <40 bpm), accelerated idioventricular rhythm (HR >40 bpm to <100 bpm), and monomorphic/polymorphic ventricular tachycardia (HR >100 bpm [such as torsades de pointes]).
- Type II second-degree (Mobitz II) AV block.
- Complete (third-degree) heart block.

ECG Findings That Qualify as SAEs

- Change in pattern suggestive of new myocardial infarction.
- Sustained ventricular tachyarrhythmias (>30 seconds' duration).
- Second- or third-degree AV block requiring pacemaker placement.
- Asystolic pauses requiring pacemaker placement.
- Atrial flutter or fibrillation with rapid ventricular response requiring cardioversion.
- Ventricular fibrillation/flutter.
- At the discretion of the investigator, any arrhythmia classified as an adverse experience.

The enumerated list of major events of potential clinical concern are recommended as "alerts" or notifications from the core ECG laboratory to the investigator and Pfizer study team, and not to be considered as all inclusive of what to be reported as AEs/SAEs.

CCI [redacted]

[redacted]

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[redacted]	
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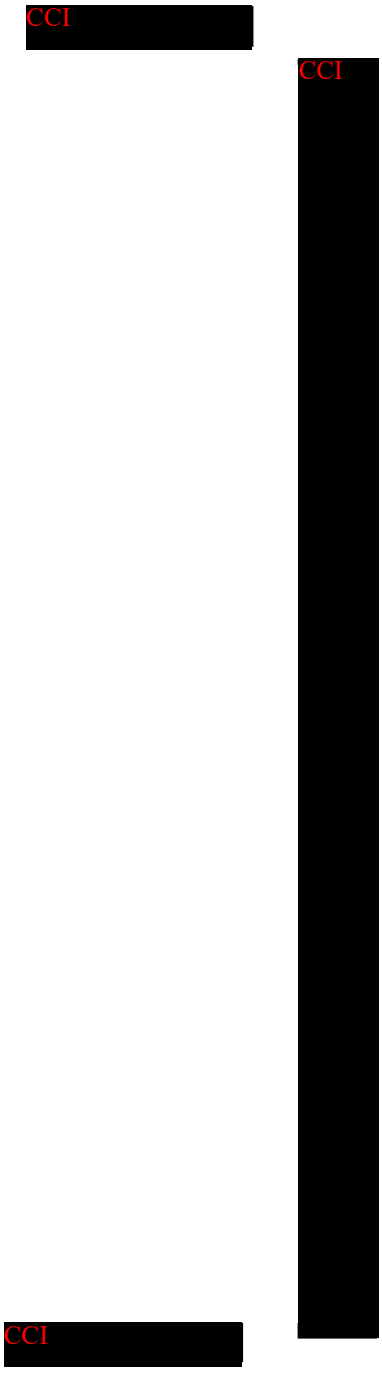
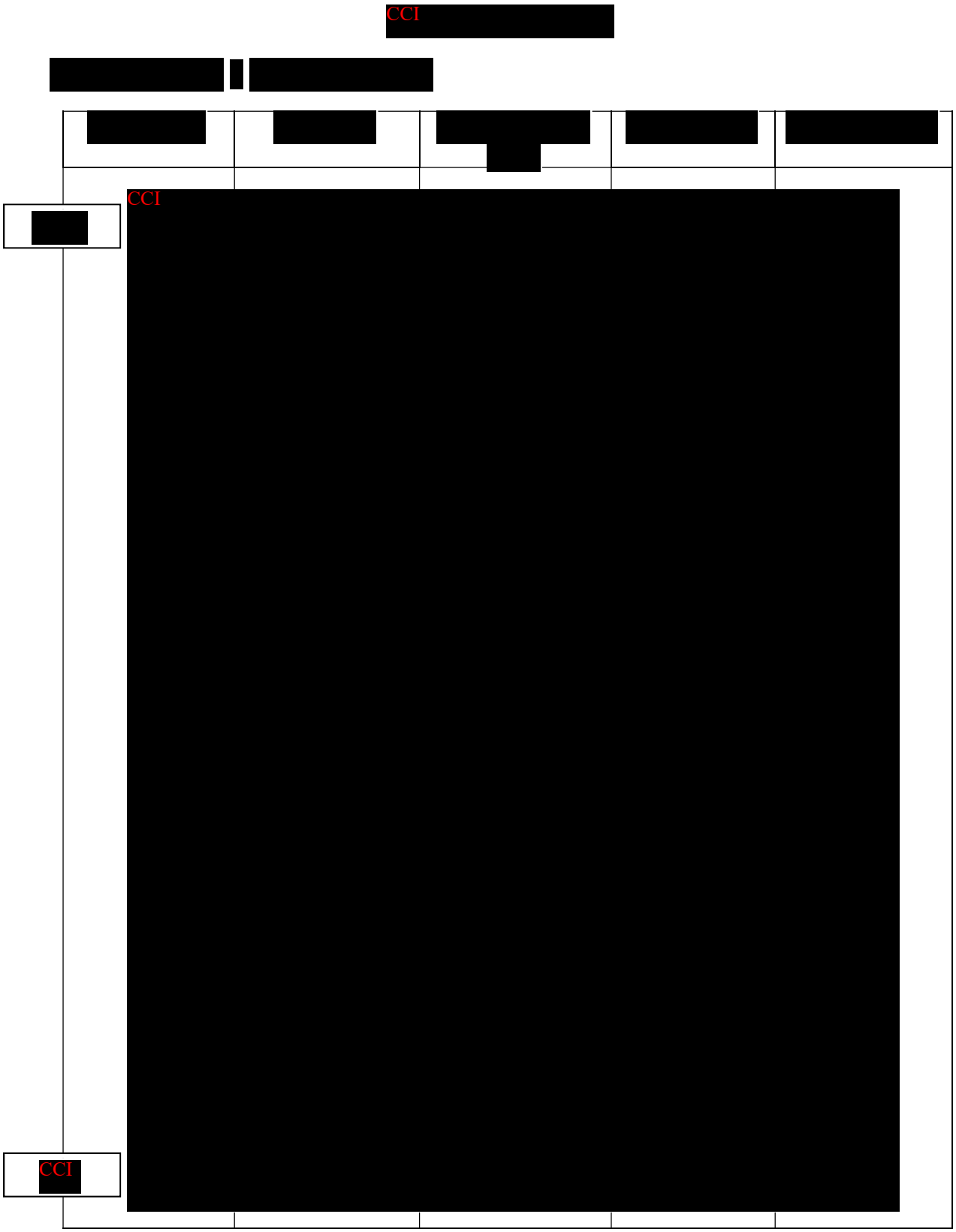
[redacted]	[redacted]

CCI [redacted]

Example: How to provide a mark (×) on the color bar.

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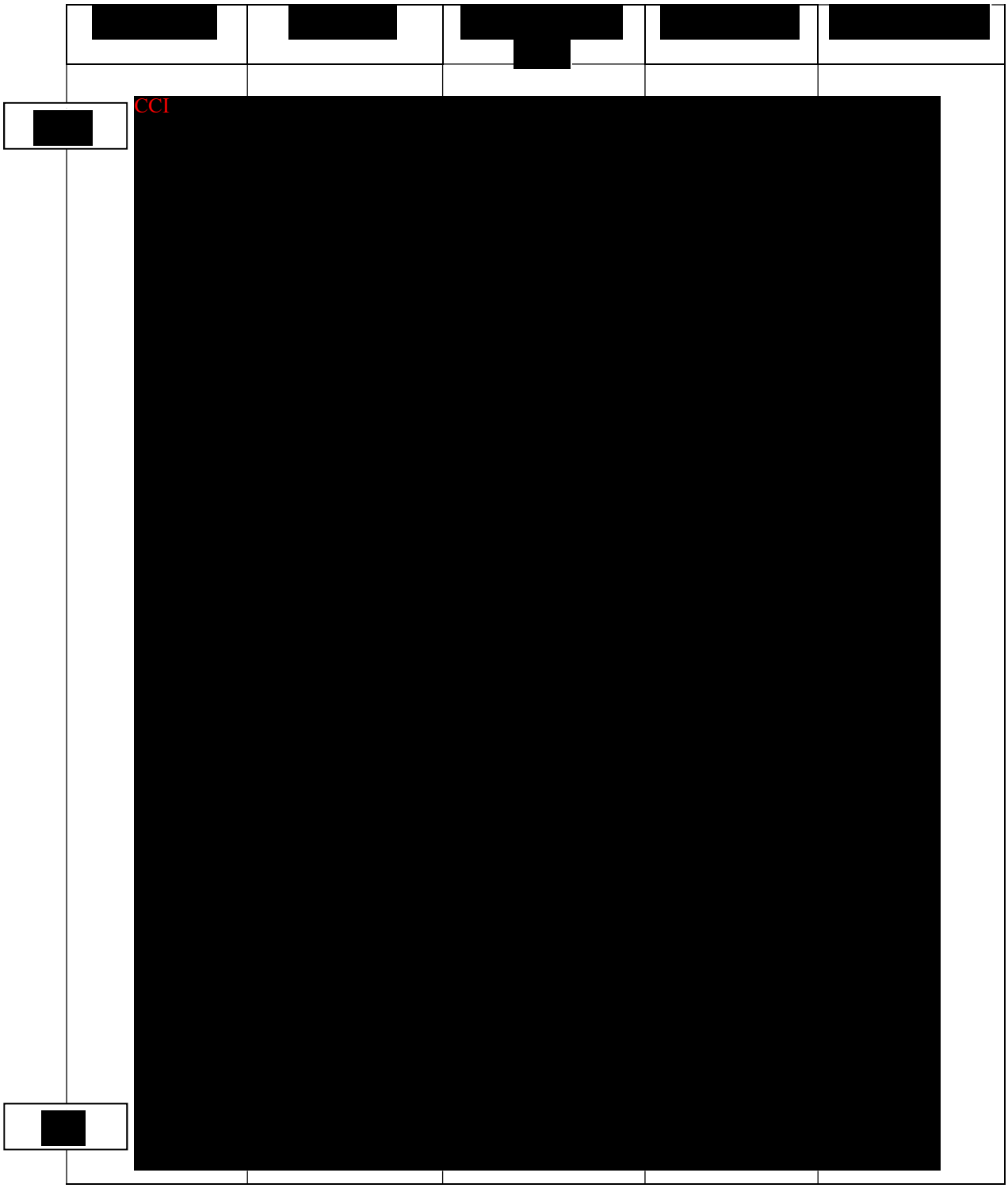

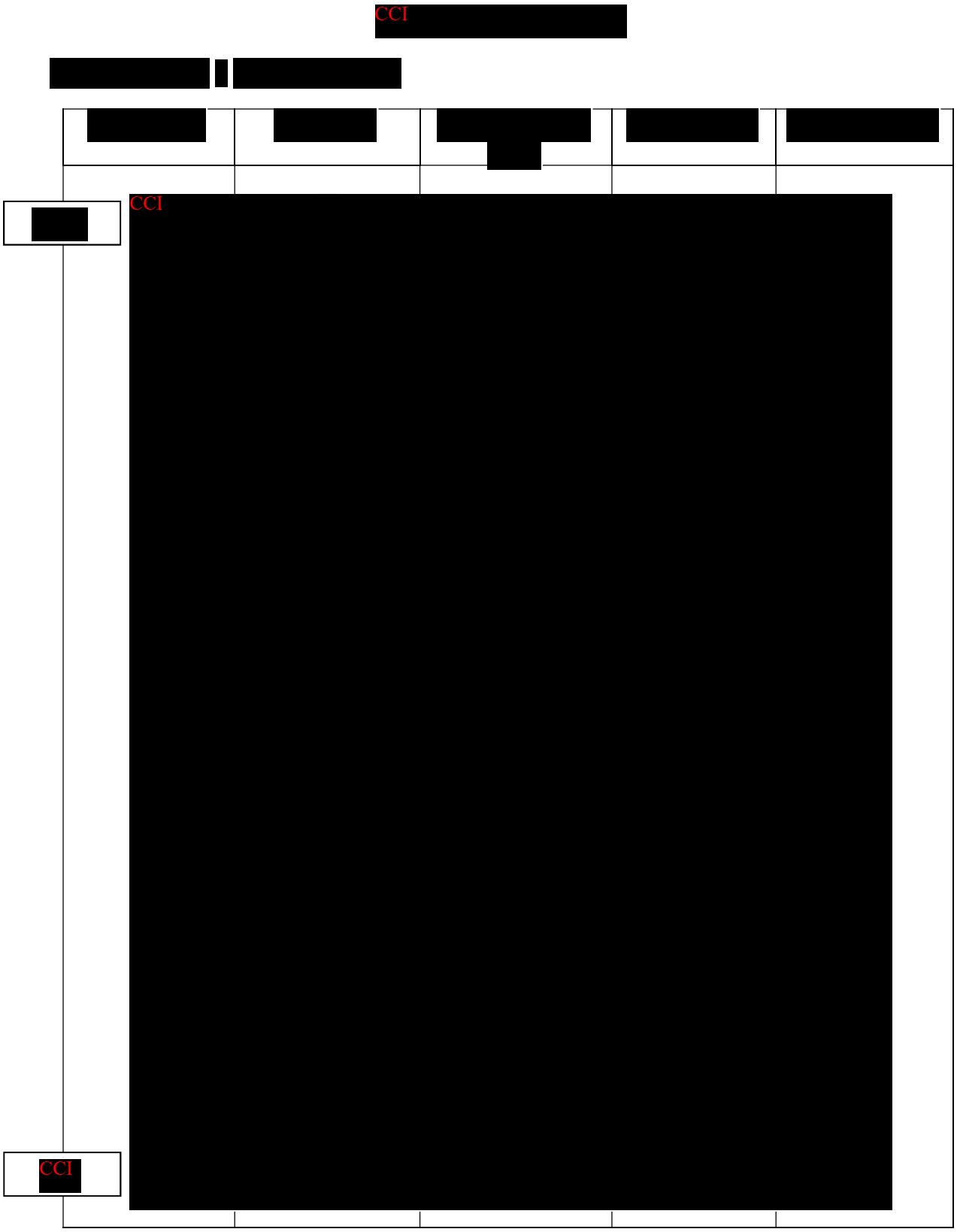
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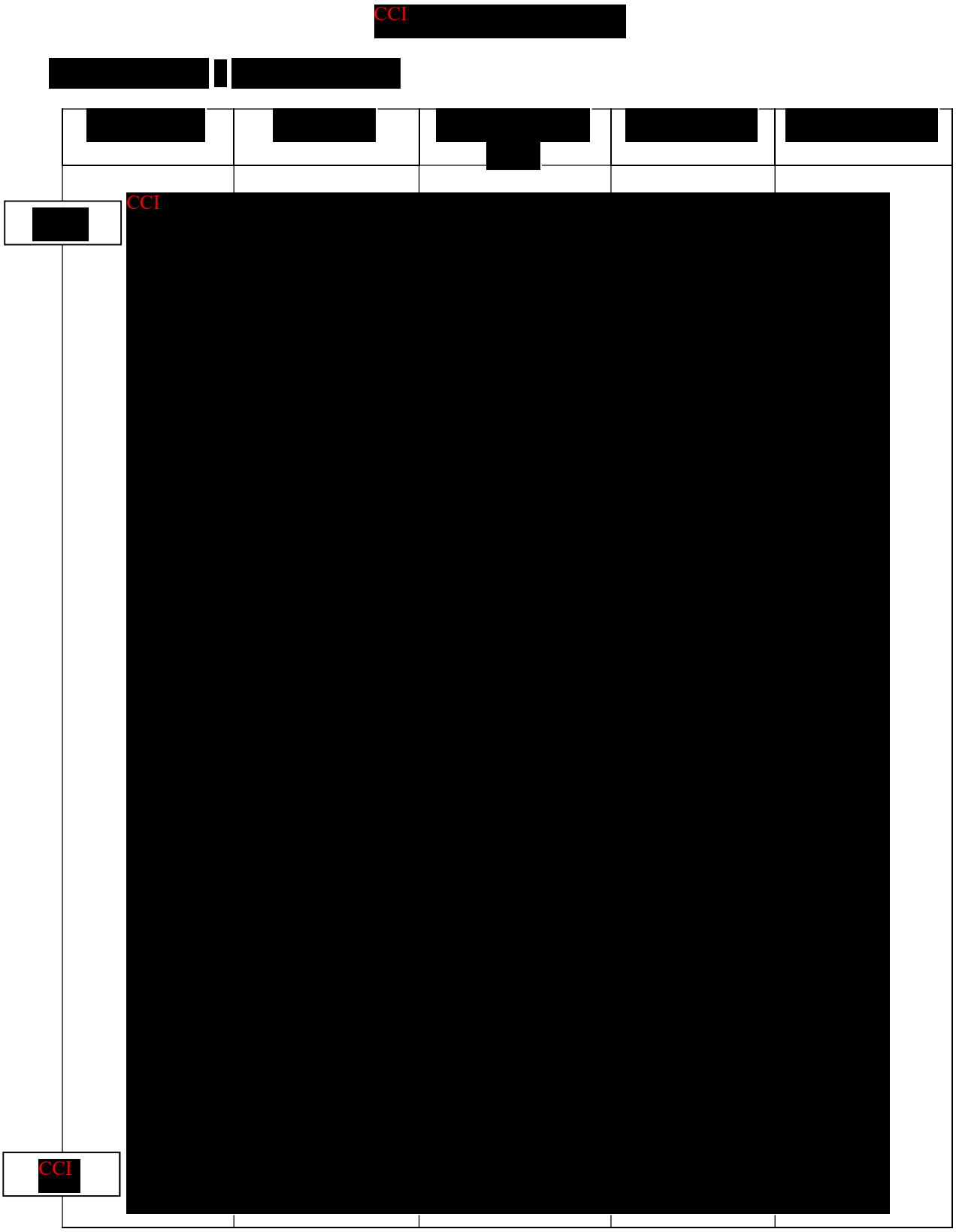
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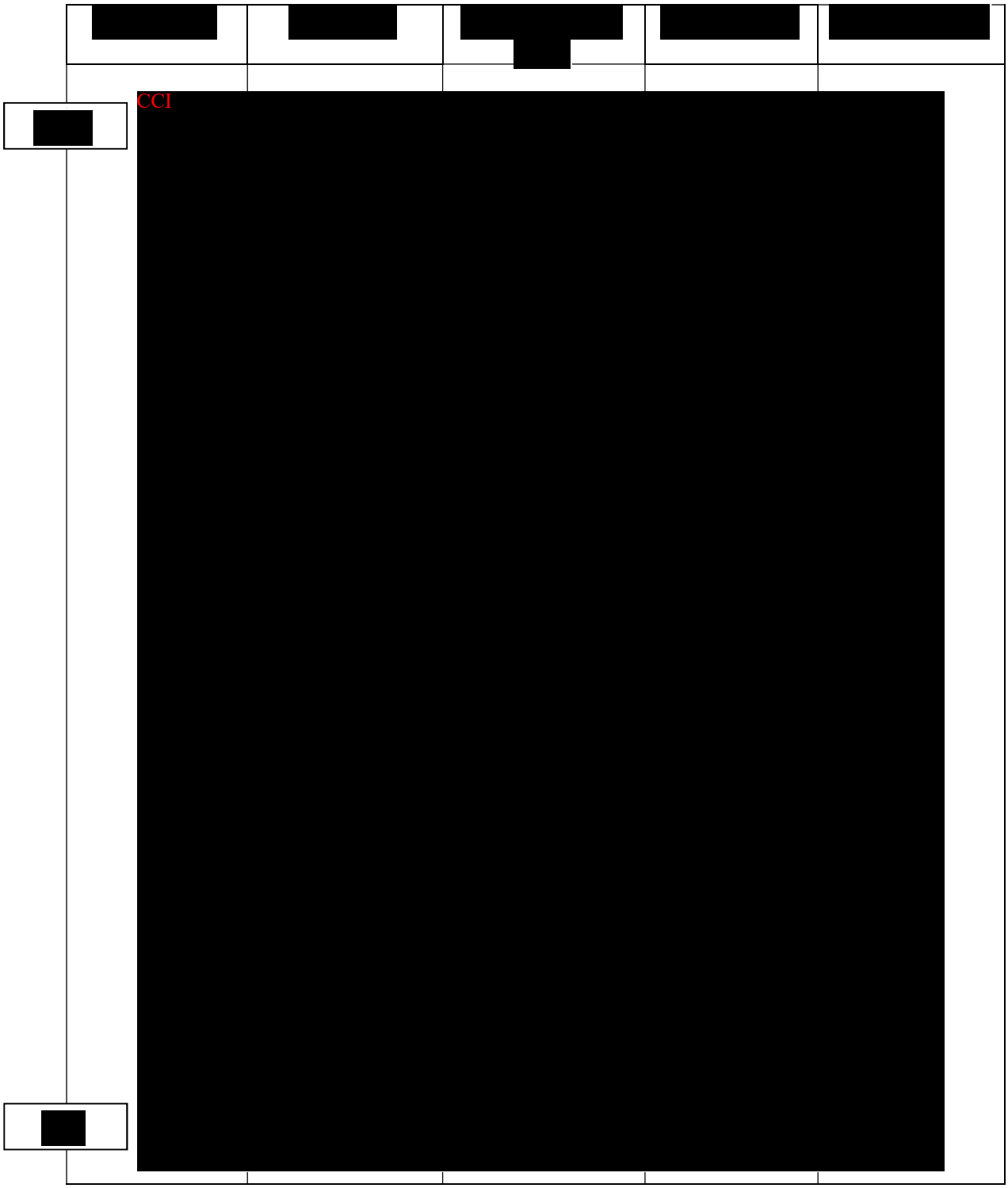

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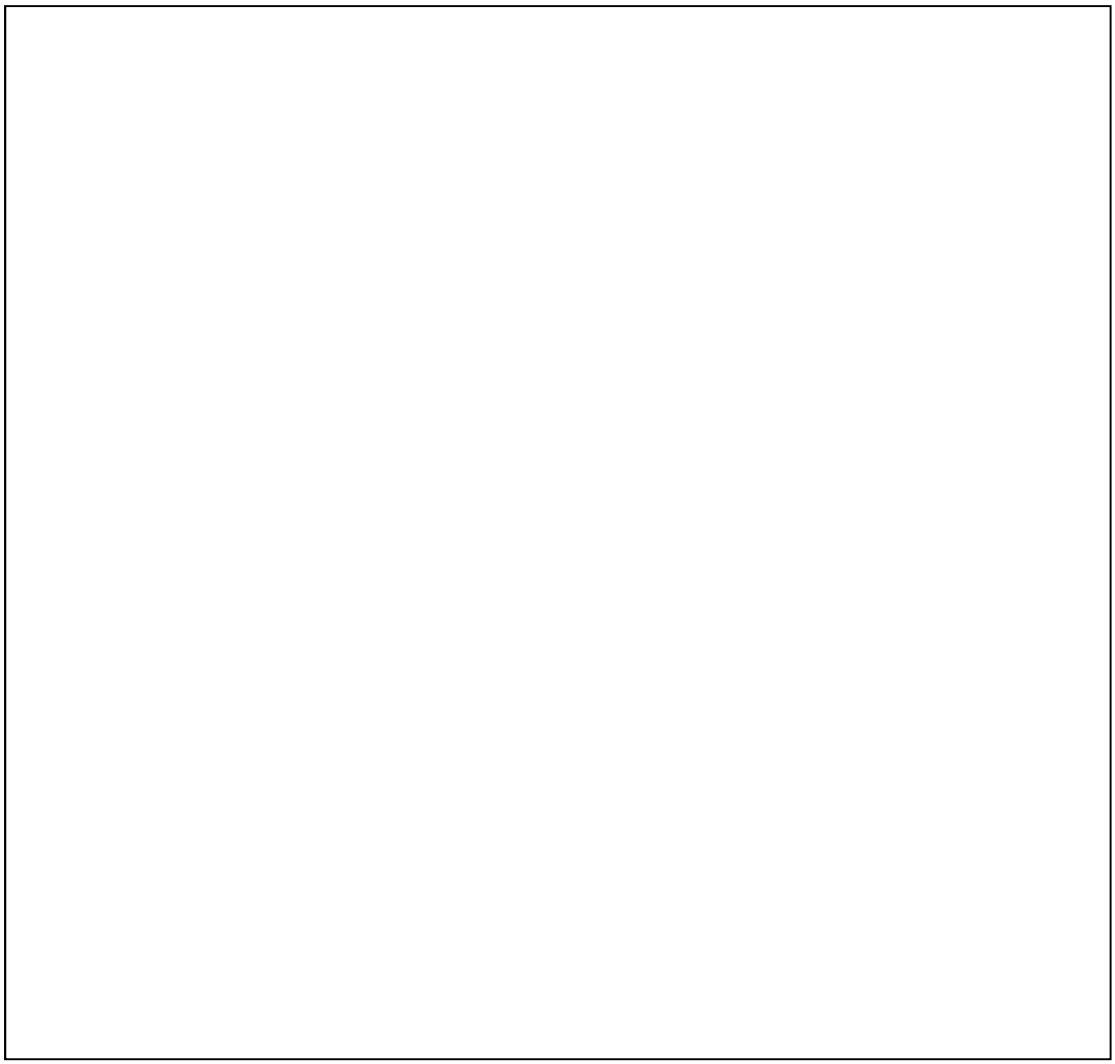

10.10. Appendix 10: Abbreviations

The following is a list of abbreviations that may be used in the protocol.

Abbreviation	Term
Abs	absolute
ADL	activities of daily living
AE	adverse event
AKI	acute kidney injury
ALT	alanine aminotransferase
aPTT	activated partial thromboplastin time
AST	aspartate aminotransferase
AUC	area under the concentration-time curve
CCI [redacted]	[redacted]
AUC_{inf}	area under the concentration-time curve from time zero 0 extrapolated to infinity
AUC_{last}	area under the plasma concentration-time curve from time 0 to the time of the last measurable concentration
AV	atrioventricular
AxMP	auxiliary medicinal product
BBS	Biospecimen Banking System
β-hCG	β-human chorionic gonadotropin
BID	twice a day
BMI	body mass index
BP	blood pressure
bpm	beats per minute
BUN	blood urea nitrogen
CFR	Code of Federal Regulations
CI	confidence interval
CIOMS	Council for International Organizations of Medical Sciences
CK	creatine kinase
CKD-EPI	Chronic Kidney Disease Epidemiology Collaboration
C_{last}	last quantifiable concentration
CCI [redacted]	[redacted]
$3CL^{pro}$	3C-like protein
C_{max}	maximum observed concentration
CO_2	carbon dioxide (bicarbonate)
COVID-19	coronavirus disease 2019
CRF	case report form
CRO	contract research organization
CRU	clinical research unit
CSR	Clinical Study Report
CT	clinical trial

Abbreviation	Term
CTIS	Clinical Trial Information System
CTMS	Clinical Trial Management System
CYP	cytochrome P450
CYP3A	cytochrome P450, family 3, subfamily A
CYP3A4	cytochrome P450 3A4
CYP3A5	cytochrome P450 3A5
DCT	data collection tool
DILI	drug-induced liver injury
DNA	deoxyribonucleic acid
DMC	Data Monitoring Committee
EC	ethics committee
ECC	emergency contact card
ECG	electrocardiogram
eCrCl	estimated creatinine clearance
eCRF	electronic case report form
EDB	exposure during breastfeeding
E-DMC	External Data Monitoring Committee
EDP	exposure during pregnancy
eGFR	estimated glomerular filtration rate
eSAE	electronic serious adverse event
EU	European Union
EudraCT	European Union Drug Regulating Authorities Clinical Trials (European Clinical Trials Database)
FDC	fixed dose combination
FIH	first in human
f_m	fraction metabolized
^{19}F-NMR	^{19}F nuclear magnetic resonance
FSH	follicle-stimulating hormone
GCP	Good Clinical Practice
GGT	gamma-glutamyl transferase
GLP	Good Laboratory Practice
HBcAb	hepatitis B core antibody
HBsAb	hepatitis B surface antibody
HBsAg	hepatitis B surface antigen
HCVAb	hepatitis C antibody
HIV	human immunodeficiency virus
HR	heart rate
HRT	hormone replacement therapy
IB	Investigator's Brochure
ICD	informed consent document
ICH	International Council for Harmonisation for Technical Requirements for Pharmaceuticals for Human Use

Abbreviation	Term
ID	identification
IMP	investigational medicinal product
IND	Investigational New Drug
IPAL	Investigational Product Accountability Log
IQMP	Integrated Quality Management Plan
IRB	Institutional Review Board
IV	Intravenous(ly)
KDIGO	Kidney Disease Improving Global Outcomes
k_{el}	elimination rate constant
K_i	inhibition constant
LBBB	left bundle branch block
LFT	liver function test
$lnAUC_{inf}$	log-transformed AUC_{inf}
lnC_{max}	log-transformed C_{max}
Log_e	natural logarithm
MAD	multiple ascending dose
MCH	mean corpuscular hemoglobin
MCHC	mean corpuscular hemoglobin concentration
MCV	mean corpuscular volume
M^{pro}	main protease
MQI	medically qualified individual
msec	millisecond
NA	Not Applicable
NHP	nonhuman primate
NIMP	non-investigational medicinal product
NOAEL	No observed adverse effect level
NSAE	non-serious adverse event
NYHA	New York Heart Association
PCR	polymerase chain reaction
PCRU	Pfizer Clinical Research Unit
PD	pharmacodynamic(s)
PE	physical examination
pH	potential of Hydrogen
PK	pharmacokinetic(s)
PR	pulse rate
PSSA	Pfizer's Serious Adverse Event Submission Assistant
PT-INR	prothrombin time-international normalized ratio
PVC	premature ventricular contraction/complex
q12h	every 12 hours
QT	measure between Q wave and T wave in the heart's electrical cycle
QTc	corrected QT interval
QTcF	QT corrected using Fridericia’s formula

Abbreviation	Term
QTL	Quality Tolerance Limit
qual	qualitative
rBA	relative bioavailability
RBC	red blood cell
RNA	ribonucleic acid
RT-PCR	reverse-transcriptase polymerase chain reaction
SAD	single ascending dose
SAE	serious adverse event
SAP	Statistical Analysis Plan
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
SCr	serum creatinine
Scys	serum cystatin C
SE	supratherapeutic exposure
SoA	schedule of activities
SOC	System Organ Class
SOP	standard operating procedure
SRSD	single reference safety document
SUSAR	Suspected Unexpected Serious Adverse Reaction
[redacted]	[redacted]
T bili	total bilirubin
TEAE	treatment-emergent adverse event
THC	tetrahydrocannabinol
CCI [redacted]	[redacted]
ULN	upper limit of normal
US	United States
CCI [redacted]	[redacted]
WBC	white blood cell
WHO	World Health Organization
WOCBP	woman/women of childbearing potential

11. REFERENCES

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